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GAS GANGRENE AS SEEN AT THE CASUALTY CLEARING STATIONS.

BY

CUTHBERT WALLACE,

CONSULTING SURGEON TO THE EXPEDITIONARY FORCE IN FRANCE.

GAS GANGRENE is still a very striking feature in the surgery of this war. It has from its very frequency ceased to arouse very much wonder, and is, I think, a little in danger of being accepted as a necessary evil, and treated by routine measures.

Two very interesting papers have recently appeared by d'Este Emery and Kenneth Taylor.

d'Este Emery's views seem to be as follows: The toxin kills the leucocytes which are the natural protection of the body. To have a sufficient supply of these it is necessary that the circulation be intact. Therefore, tissue devitalized by trauma, by constriction of the limb, or by actual damage, will favour the disease. Why, however, does the disease not stop when healthy tissue is reached? The explanation lies in the fact that the toxin, when present in large amount, inhibits emigration and kills the leucocytes. If there is no free escape the toxin accumulates to such an extent that it soaks through into the healthy tissue and kills the defensive leucocyte, and so the gangrene spreads.

Taylor's view may be summarized as follows: The mechanical action of the pressure produced by the gas is usually, if not always, the most important part of the infection. It brings about the death of the tissues from (*a*) the resulting anaemia, (*b*) the actual mechanical fragmentation of the muscle substance, (*c*) the mechanical scattering of the infection. He shows in the earlier part of his paper that the experimental injection of the exotoxin produces softening of muscle and parenchymatous degeneration of the liver cells. His experiments *in vitro* show the same effect on pieces of muscle. He suggests that the rapid systemic intoxication is produced by the breaking down of the muscle substance, as injection of the exotoxin does not produce an effect comparable to that seen in the clinical course of the disease.

If these two theories of the disease are compared, it will be found that they differ mainly in the part played by the gas. Taylor thinks that it plays an important part; d'Este Emery denies this and believes that the bacteria toxins are the important factor. Taylor believes that the disease is mainly one of the muscles; d'Este Emery thinks that this is a mistake, and that it is only the fact of the bacteria being able to produce gas by the aid of the muscle sugar that leads to this assumption.

These views reflect two somewhat different conceptions of the disease, but it seems probable that both observers have some right on their sides.

I have thought that a statement of some of the features of the disease as it presents itself to me may be of interest. I will commence by quoting some cases that illustrate some points that I want to emphasize.

CASE I.

A soldier (under the care of Captain Anderson) was hit by a shell fragment which made a large wound involving the adductors and hamstrings and smashing the femur in the upper third.

The superficial and deep femorals were injured and had to be ligated. The wound, which was a large open one, was cleansed and drained in the ordinary way. The limb was fixed in a Thomas splint.

Within thirty-six hours the leg was dead but non-tympanitic, the thigh was tympanitic over all its circumference. It was still warm, as such infected limbs often are, about the seat of the actual injury. No crepitation could be obtained by palpation, but with a stethoscope distinct crackling could be detected on passive movement of the limb and on relaxing or increasing deep pressure; the stethoscope was applied over the vastus externus. The limb was removed through the fracture, but the patient died quietly in his sleep some twelve hours later.

Examination of the Ablated Limb.

The subcutaneous tissue appeared normally yellow in its fatty layer, and no gas could be demonstrated by pressure. The deeper layer immediately over the fascia lata was oedematous but not discoloured. On incising the fascia lata, which appeared normal, a similar oedematous condition of the areolar tissue over the vastus externus was observed. No gas could be demonstrated here. The vastus externus was normal in colour, and contracted in a lively manner when pinched or when cut with a knife.

The adductor longus was of a dirty brick-red colour, more opaque and less translucent than healthy muscle. It was non-contractile, and gave no sign of life when pinched. It was non-crepitant to the squeezing finger and cutting scalpel. The hamstring muscles were the same colour, non-contractile, and frankly gaseous and crepitant.

The areolar tissue was oedematous and infiltrated with blood, but not black.

Cultures were made from portions of the vastus externus and adductor longus by taking pieces from the heart of the muscle after searing the surface. Both, as reported by Captain Emrys Roberts, showed anaërobic bacteria.

Pieces of muscle taken from vastus externus, adductor longus and biceps were examined microscopically by Captain McNee, Captain E. Roberts, and Lieutenant Dunn.

1. *The Vastus Externus.*—The fibres were normal, and no bacteria were to be seen in the tissues.

2. *The Adductor Longus.*—The fibres had lost their transverse striation. The muscle substance was broken up in transverse plates or presented longitudinal markings, as if painted with a coarse brush. Between the fibres, which were obviously separated from one another, were bacteria in varying quantities in the interfibrillar spaces. There were some polymorphonuclear leucocytes.

3. *The Biceps.*—The appearances were similar to those seen in the adductor longus, but the separation of the fibres was more marked and there were more bacilli and leucocytes.

CASE II.

A man under the care of Major Cuff, who had been hit with a shell fragment in the middle of the leg. The anterior tibial was divided and was tied. (The man was also wounded in the liver and coeliotomy performed to stop the bleeding.)

About forty-eight hours after the receipt of the injury the leg became tympanitic and died. The skin of the thigh was crepitant and the gas in the crepitant area could be displaced by pressure in the same manner that surgical emphysema can be.

An incision in the crepitant area showed normal looking fat without oedema, and the knife drawn over the deep fascia gave the typical hollow sound. The subfascia connective tissue contained gas. A culture taken from this locality remained sterile.

The leg was taken off through the knee. The thigh never gave any sign of infection, although it was crepitant. A good recovery followed.

CASE III.

Pte. B. was wounded in the thigh with a shell fragment. The femoral was exposed in the wound. The thigh became tympanitic on the fourth day, and was treated with incisions, which arrested the gangrene. The foot died in the following night, and the leg was tympanitic in the morning. Exploration showed that the femoral had become thrombosed. The leg was amputated at the seat of election.

Examination of the Ablated Part.

It was drummy, but not crepitant. The anterior tibial muscle group was of a dirty red colour and non-contractile. The posterior tibial muscle group was brick-red, but non-crepitant. The calf group was contractile and purple. The fascial planes between the muscles appeared normal. The subcutaneous tissue in the cut surface of the amputated leg was oedematous and greenish, but contained no gas.

Cultures from the subcutaneous tissue and the purple contractile calf groups both gave *B. aërogenes capsulatus*.

CASE IV.

A man was wounded on the flexor aspect of the forearm. He exhibited all the signs of "gas infection." The hand was warm but anaesthetic. Incisions through the deep fascia arrested the disease, but the superficial flexors sloughed; otherwise the man made a good recovery.

CASE V.

A man was shot through the flexor aspect of the forearm. The bones were intact. He was admitted with a tense swollen forearm. The hand was cold and insensible and showed a line across the back of the hand suggesting that the outer half of the hand was about to mortify.

Incisions into the flexor aspect of the forearm and into the thenar eminences showed the superficial muscles and those of the thenar eminences in a state of "red death." Next day the hand was warm and the circulation returning. The improvement was of short duration and the hand and flexor muscles were ablated. The extensor muscles were uninfected. The man made a good recovery.

CASE VI.

A man was shot though the middle of the humeral biceps. He developed all the classical signs of gas gangrene. The medical officer in charge thought that amputation would be necessary. The surgical specialist (Captain Neligan), however, made a long incision over the muscle, and found that the muscle was dead and gaseous in the middle at the site of the wound. The two ends of the muscle were still normal in colour and contractile. The whole muscle was ablated.

There was some doubt as to the state of the triceps, but an incision through the fascia showed that this muscle was healthy and contractile.

CASE VII.

A patient hit in the buttock suddenly developed gas gangrene in this region. It was freely incised. Before death, which occurred within a few hours, the upper arm became crepitant to the finger, though there was no wound at all in this region.

CASE VIII.

The case quoted by Captains Mullally and McNee in the *Lancet*, April 1st, 1916, where gas gangrene appeared at the sites of subcutaneous injections.

CASE IX.

A case quoted by Lieutenant-Colonel Gordon Watson where the opposite thigh to that injured became distended with gas shortly before death.

CASE X.

Many cases in which, after amputation, one muscle is found in the stump dead and gaseous and separable from the others if the insertion or origin is divided.

CASE XI.

A man was shot through the popliteal space. The leg was cold and dead, but was not drummy or crepitant. Amputation through the knee was performed. The popliteal space was full of blood. There was a large hole in the artery.

Dissection of the ablated leg showed that the muscles were non-contractile but purple in appearance.

Microscopical sections showed the normal striation of the fibres, which were not separated from one another.

My own impressions of the disease as seen at the front and gathered from the cases above quoted, and many others, may be briefly stated as follows:

1.

It is rare to meet gas gangrene without a muscle injury.

2.

It is chiefly a disease of the muscles, and is rarely dangerous unless muscle is involved.

It occurs, it is true, in retroperitoneal haematoma, but here there are wounded muscles in which it can at first obtain a lodgement, and there is, in addition, the blood clot and the tissues devitalized by the extravasated blood in which it can spread.

It has been said that one of the most remarkable features about the *B. aërogenes capsulatus* is the fact that a bacillus usually but little pathogenic becomes suddenly extremely virulent. Barger and Dale have shown that an allied bacillus—the vibrio-septique—becomes at once extremely toxic when grown on muscle.

Cannot, then, the difference in the toxicity of the *B. aërogenes capsulatus* depend on the nature of the medium in which it is implanted? Will not this account for the difference in the clinical course of many gunshot injuries? If inoculated into subcutaneous or areolar tissue it finds difficulty in establishing itself, but if it gains entrance to muscle it finds itself in favourable surroundings and is enabled at once to produce such toxins as will quickly destroy its host.

3.

The lesion in its early stages may be described as a longitudinal one, running up and down the wounded muscles from the seat of the lesion (see Case VI). Muscles and groups of muscles are involved while others escape.

4.

It is rare to find all the muscles of a segment of a limb involved, save in a segment distal to one in which the main blood supply has been cut off. Thus the whole leg dies and becomes gaseous when the femoral artery has been blocked in the thigh.

5.

The muscles affected are in the first instance the wounded ones. If the pressure caused by the disease is relieved, the gangrene will most probably be confined to these muscles, but if the pressure is not relieved the other muscles may so have their blood supply checked as to fall victims to the infection.

6.

Muscles contained in rigid compartments, such as the anterior tibial group, are especially prone to die if wounded.

7.

There is but little tendency for the infection to pass from one muscle to another. This is well shown in amputation stumps, where one muscle dies and becomes gaseous, while the rest of the cut muscles remain healthy.

8.

The infection is further advanced in the muscles than in the intermuscular areolar planes.

In legs amputated for gas gangrene the only visible abnormality may be the brick-red colour of the dead muscles. So normal-looking may be the appearance of the cut surface of the limb that I have known people unacquainted with the peculiarities of the disease express unbelief in the infection of the limb until the bacilli were demonstrated in the non-contractile muscle. Again, the internal appearance of a limb affected with gas gangrene is quite different from that of such a disease as cellulitis of the neck, in which the areolar tissue is infected and the muscles normal.

9.

The muscles become resonant from the presence of gas long before they become crepitant to the finger, though this phenomenon may be perceptible at an early date by means of the stethoscope. This was pointed out to me by Captain Maybury.

10.

The presence of gaseous crepitation does not necessarily mean microbic infection (see Case II).

11.

Crepitation is usually a comparatively late phenomenon, and is due to the escape of gas into the areolar and subcutaneous tissue.

12.

In an infected limb a vascular lesion will be followed by the death of the muscle or muscle group, which death would not have followed in an uninfected limb. It is believed that the pressure produced by the gas so raises the tension in the limb as to finally arrest the circulation.

13.

In an infected limb there are several conditions of the muscles:

(*a*) Normal purple red contractile muscle, which may or may not be infected, as judged by cultural experiments.

(*b*) Dead, non-contractile, non-crepitant muscle, which has a peculiar red colour and is less translucent than normal muscle.

(*c*) Dead, non-contractile, crepitant muscle, which has the same appearance as the last.

(*d*) Brown, black, or diffluent muscle.

(Muscle dead from the cutting off of the blood supply is a purplish brown and its naked-eye appearance quite different from (*b*) and (*c*).)

14.

The microscopic appearances of muscle dead from cutting off its blood supply are different from those of a muscle dead from infection. The striation is present in the former and absent in the latter.

15.

The bacteria are between the muscle fibres and not in them.

16.

Microscopical examination suggests that the gas may find its way between the muscle fibres in front of the bacterial invasion.

17.

In dead infected muscles the fibres are separated from one another. This separation is more marked in muscles that are crepitant than in those that have not yet reached that stage.

Death of a Muscle with an Intact Blood Supply.

A muscle deprived of its usual blood supply, or with a restricted supply, falls an easy prey to the gas bacillus. Muscles with an intact blood supply seem liable to die, but the method of their death is not quite clear. Cultures show that normal-looking and contractile muscle may be infected. What proportion of such infected muscles would ultimately die if left untreated is not known. Nor is the way in which the infection spreads known.

Case VI shows that the infection and death spreads in both directions from the seat of injury, for in this case the centre of the muscle on both sides of the wound was dead, but the extremities were still living and contractile. Small bomb or shell wounds which would not affect the main blood supply may be followed by gas gangrene; and experience shows that if left untreated such infection will spread rapidly and compass the death of the wounded muscle. Incisions will save this spread of the gangrene. It seems, therefore, that pressure is a great factor, but whether it wholly acts by cutting off the blood supply or by allowing the gas to penetrate the muscle and produce an anaemia of the fibres, or by favouring the penetration of the yet living muscle by the toxins derived directly or indirectly from the bacilli, is yet undetermined.

In the first instance the infection is possibly due to the fact that the local damage affords a medium in which the bacteria can grow and multiply. The extension is brought about in two ways.

1. *The Toxins Produced by the Bacteria.*

One of the most striking things seen in microscopic sections of muscles dead of gas infection is the loss of striation and the breaking up of the muscle-fibre substance. These appearances are quite different from those seen in uninfected dead muscle. There must be some cause for this difference.

In some microscopic sections of an infected muscle all stages of the change can be seen from normal striated fibres to the totally disorganized. The appearances are seen in sections in which the bacteria are scanty or absent and in which the amount of the separation of the fibres—presumably by gas—varies in great degree.

The change in the muscle fibre may, therefore, be due either to some toxin produced directly or indirectly by the bacteria.

Both d'Este Emery and Taylor seem disposed to credit some action to this source. Taylor is of opinion that the bacterial exotoxin is not powerful enough to account for the constitutional symptoms, and suggests that these are due to toxin produced by disintegration of the muscle substance by the bacterial toxin. He does not suggest it, but it seems possible that the toxic muscle substance produced in the traumatized portion of the muscle may be carried into the more distal parts of the muscle and cause its death.

2. *Part Played by the Gas.*

This may be divided into two categories:

(*a*) The part it plays within the limb.
(*b*) The part it plays within the muscle.

One of the most striking and most important signs of gas infection is the tense and tympanitic state of the limb and the rapidity with which this condition is reached.

There is nothing but the rapid evolution of gas that could bring about such a condition in so short a time. An incision into such a limb shows that the increased tension is caused by the swelling of the muscle due to the gas within it. There may be gas in the areolar planes, but this is not usually the case to any great degree. It has been pointed out that a muscle may be dead and full of gas and yet not crepitant to the finger; if, therefore, crepitation is taken as the criterion of gas infection, a mistake may be made and a gaseous muscle passed as non-gaseous.

When the gas is present in the areolar tissue it follows the path of least resistance and finds its way along the intermuscular planes and around the vessels. It will disseminate itself into the subcutaneous tissue a considerable way from the wound.

It has been stated above that in a segment of a limb that has been wounded it is only the wounded muscles that yield to the infection in the first instance. The injured muscles will induce a deleterious effect on the uninjured one by raising the intrafascial pressure of the limb and thus causing pressure on the blood vessels and consequent checking of the circulation. Even if the areolar planes are grossly infected, they cannot influence the pressure in the limb, since the muscle sugar is necessary for the production of gas.

Taylor is of opinion that the pressure of gas within the muscle itself leads to disintegration of the muscle fibre substance. The pressure produced by the gas will in addition tend to drive the toxins into the circulation and thus be a factor in the production of the systemic poisoning and lowering of the resistive power of the body.

d'Este Emery, in combating Taylor's contention that the gas production plays an important part in the disease, says: "Gangrene may occur and the patient may die without the formation of any gas in the tissues." This statement is opposed to what is seen of the disease in the casualty clearing stations. The great sign on which reliance is placed is the swollen and tympanitic condition of the limb, usually preceded by constitutional symptoms. What can cause such sudden swelling unless it be gas? In such cases there is no crackling or crepitation to the finger palpating the skin. An examination of the muscles that have suffered the "red death" may even yet reveal no crepitation, but microscopic sections of such non-crepitant muscles show the fibres separated from one another, and the spaces often free from leucocytes and bacteria.

Men who die of the effects of gas gangrene in the casualty clearing stations die before there is any marked suppuration. It may be that the suppuration and involvement of the fascial planes are seen after the patients have left the front, being a later manifestation of the disease.

The Path of the Infection when an Unwounded Segment of a Limb from which the Blood Supply has been cut off becomes Infected.

When a muscle has been wounded the method of infection is obvious. The path of the infection is not so obvious when there is no wound. For instance, the leg below the knee will become infected when the femoral vessels are occluded, although there is no wound in the leg proper. There seem to be three possible avenues: (1) Direct extension; (2) extension along the blood vessels; (3) systemic infection.

1. *Direct Extension.*—The anatomical appearances do not favour this route. The only muscular tissue that crosses the knee is contained in the two heads of the gastrocnemius. It has been pointed out above that direct extension to an intact muscle is rare, and as a matter of fact the soleus and gastrocnemius are the last muscles to become infected and die. The appearance of the fascial planes does not suggest them as the path.

2. *Extension along the Blood Vessels.*—Possibly the infection travels inside the vessels, just before or after the circulation has ceased, the open ends of the vessels on the infected wound being the starting point. H. Dunn has found the *aërogenes* bacilli in the clotted vessels in the brain after a wound of the carotid artery.

3. *Systemic Infection.*—Mullally and McNee have pointed out that gas formation may take place at the sites of subcutaneous and saline injections, the slight trauma being sufficient to afford a resting place for the bacteria circulating in the blood. Case VII and Case IX, above quoted, point in the same direction. It is therefore possible that bacteria in the blood are implanted in the distal segment of the limb before the circulation is quite brought to a close. It may be that they first gain a footing in the muscles mostly affected by the cutting off of the main blood supply, and by the production of gas within them finally and completely arrest the blood stream.

CONCLUSIONS AS REGARDS TREATMENT.

(*a*)

The circulation should be helped in every way. It is unnecessary to insist on the bad effects of tight bandages and tourniquets—they are appreciated now by all. Tension in a limb due to blood effusion should be relieved, no matter how small the wound. Bleeding from a small branch may produce pressure on the main vessel, and even without this may cause such pressure as to embarrass the circulation. In cases where haemorrhage into a limb is continuing, there is no doubt as to the advisability of finding the bleeding point. If the artery is a main one an attempt should be made to suture, instead of to ligate, the vessel.

Suture also would seem to be worth trying when a main vessel is locally thrombosed from the effects of trauma. If there is difficulty in bringing the cut ends of the vessel into apposition a Tuffier's tube may be tried.

Injuries of the popliteal artery are so uniformly followed by gangrene, if the vessel is ligated, that every means should be tried to re-establish the lumen if only for a few hours

In the case of circumscribed arterial haematoma accompanying a small wound of the limb, time alone can show if an attempt to suture the artery is good. One should most probably be guided by the state of the circulation in the distal portion of the limb.

(*b*)

In dealing with gas gangrene in a wounded segment of a limb and deciding on the advisability of amputation, it should be borne in mind that it is usually only the wounded muscles that become gaseous and that incision or ablation of such muscles is often sufficient to arrest the disease and stop the infection (see Case VI)

In the case of the thigh the ablation of muscles may present difficulties, but in the leg this part of the limb can often be saved by the ablation of the anterior tibial group, and the same applies to the muscles of the forearm. The brick-red colour and the non-contractility will show at once which muscles are past saving.

(*c*)

When gas gangrene occurs in a segment of a limb distal to the segment wounded it nearly always means that the main artery is blocked, and amputation of the gangrenous segment is the only course.

(*d*)

The presence of crepitation in tissues apart from other signs is of no special importance. A limb should not be sacrificed on account of crepitant skin (see Case II). The state of the muscles and the number dead should be ascertained before amputation is performed, otherwise a limb or a very considerable portion of its length may be sacrificed unnecessarily.

The disease is the great bugbear of the surgeon at the front. It involves much labour and complicates the evacuation of the wounded. It occurs in all sorts of wounds, whether small or large, and with all sorts of projectiles. There is no wound, however insignificant, that one can feel happy about if not opened up. It is true that the disease is not so dangerous now as it used to be, because of the universal opening up of wounds, but the amount of trouble that it entails and the amount of disturbance that it is necessary to inflict on a grievously wounded patient makes one long for some remedy other than surgical interference.

THE DIRECT TRANSFUSION OF BLOOD:

ITS VALUE IN HAEMORRHAGE AND SHOCK IN THE TREATMENT OF THE WOUNDED IN WAR.[*]

BY

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The direct transfusion of human blood from one individual to another is an operation of great antiquity, but in the history of medicine it has never been as extensively employed as it is to-day. From time to time transfusion of blood has been abandoned, largely because of technical difficulties in its performance, but of late years, as the result of the introduction of more perfect and less complex methods, the operation has become much more generally employed. Its value as a therapeutic measure in the treatment of many pathol gical conditions has in recent years been established on a scientific basis. Thus it has proved of great service in the treatment of haemorrhage, shock, illuminating gas poisoning, and of more doubtful value in pernicious anaemia and certain toxaemias.

We will not review the observations which have been made in recent medical literature regarding the value of transfusion in the multitudinous conditions in which it has been used; we propose to restrict our observations to the value of direct transfusion of blood in the emergencies of military surgery. There may be some question as to its efficacy in many of the conditions in which it has been employed, but in haemorrhage and shock, more particularly in shock accompanied by haemorrhage, its value has been proved beyond a shadow of doubt. We may assert that we have no more efficient means at our command to save life in cases of severe haemorrhage than by the direct transfusion of human blood from one individual to another. This has been proved not only in traumatic haemorrhage (primary and secondary), but in haemorrhage from such conditions as gastric ulcer, typhoid ulcer, ruptured extra-uterine pregnancy, the haemorrhages of the newborn, and in haemophilia.

If we inquire into facts which are known regarding the effect of introducing human blood into the vascular system of an individual suffering from haemorrhage, we realize the difficulty and complexity of the problem involved in our effort to appreciate the full result of transfusion. As regards the transfused blood, we have no precise knowledge concerning the fate of the corpuscular elements, nor of the plasma. The possibility of the harmful effect of lysins or agglutinins in the blood of the donor or recipient has been feared, but this has been greatly exaggerated. A large amount of clinical evidence has accumulated to warrant us in assuming that no serious harm is to be anticipated from such sources. The laboratory tests for haemolysis and agglutination may be carried out if time and facilities permit, but they are not necessary and are by no means trustworthy. The laboratory findings in haemolysis, for example, have been found at times at variance with the actual results obtained in the living body. No fatal result from either haemolysis or agglutination has hitherto been reported.

The danger of the transmission of disease makes it essential we should inquire into the past record of the donor, particularly as to whether or not he has had syphilis.

Two results of transfusion stand out prominently and are unquestionably of enormous value in the treatment of haemorrhage. These are, first, it increases the power of coagulation of the blood, and second, it improves the local resistance of the tissues to infection. These facts have been recorded by a number of observers over a large series of cases and have been shown in the most striking fashion in the cases of secondary haemorrhage which we have personally treated by transfusion. If we stopped there and claimed no more for transfusion our contention in urging its employment in such cases would be justified. There are, however, other effects which are more difficult to analyse, and yet which we are warranted in believing are of great service. If we introduce, say, a litre of blood with all its constituent elements into the vascular system of an individual suffering from the direct effects of a severe haemorrhage, and if we have reason to believe the transfused blood takes on its normal function in the recipient, the ideal therapeutic measure has obviously been employed. This is admittedly a very complex problem, and we acknowledge our ground is not as sure in the matter of conclusive evidence as it is regarding the effect upon the coagulability of the blood and the increased resistance to infection. If, however, we employ all known tests after transfusion and find no evidence of haemolysis, we have strong ground for assuming that the donor's blood, in all its elements, circulates and functions in the recipient. If, for example, we find no evidence of haemoglobin in the urine, we certainly have no laking of the red cells in the circulating blood. The possibility of phagocytic destruction of red cells in the liver cannot so readily be disposed of, and we have no means of determining this factor. The blood count does not help us to any extent, because we find, for example, that if a litre of blood is transfused into a patient who is exsanguinated, the blood count is not necessarily altered in spite of the fact that the red cells are low in our patient at the time. Thus, recently a patient with a red count of 3,000,000 received a litre of blood from a donor with a red count of 5,000,000. Two hours subsequently the red cells in the recipient were still 3,000,000, but his colour was markedly improved and his blood pressure and pulse were maintained at normal. Obviously the introduction of the more concentrated blood resulted in an osmosis which quickly restored the former equilibrium and resulted in a dilution of the mixed blood now circulating. There was no evidence of haemolysis and the result of transfusion was to increase

[*] Read before the Salonica Medical Society, April 5th, 1916.

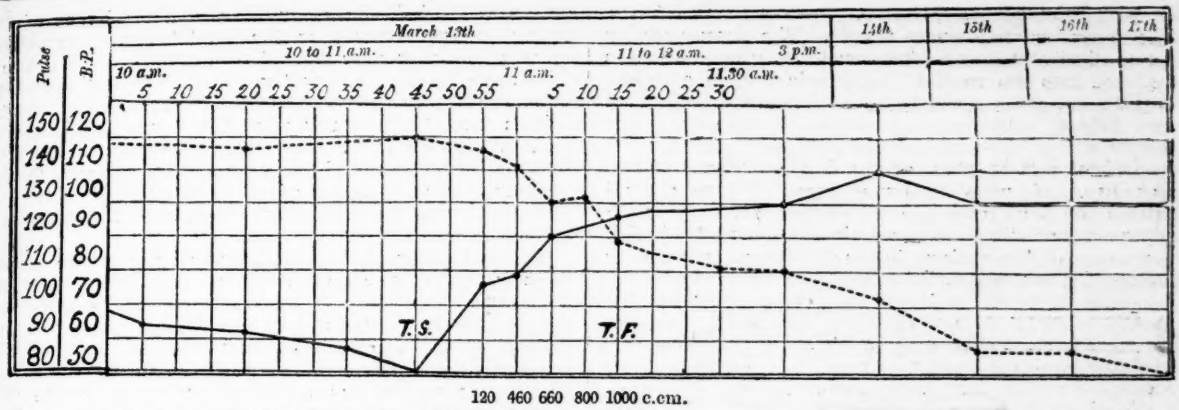

Chart indicating the rapidity of the pulse and the condition of the blood pressure before, during, and after the operation of transfusion in a man who was in a desperate condition from secondary haemorrhage. The details of the history of the case are recorded in the paper. Continuous line = blood pressure. Interrupted line = pulse rate. T.S. = beginning of transfusion. T.F. = end of transfusion.

probably by one-third or more the amount of blood circulating in his vascular system. The result was vast improvement in his general condition, with cessation of haemorrhage and rapid healing of his wound.

Illustrative Cases.

Cases illustrating the beneficial effect of the direct transfusion of human blood in haemorrhage have come under the observation of each of us. Unfortunately our clinical notes of cases occurring at home are not available for the record of complete details in this paper, but the main facts regarding two such may be cited. A lad, 16 years of age, had a deep cut, inflicted by an axe, in the calf of the leg. The wound suppurated and secondary haemorrhage from the posterior tibial artery occurred. He was sent to hospital and in the clinic the artery was tied high in the wound; haemorrhage recurring, the vessel was ligatured through a fresh incision at the lower end of the popliteal space. Subsequently the wound continued to suppurate, the pulse was rapid and thready, and he steadily lost ground. Direct transfusion of blood was undertaken; the lad's brother acted as donor and the operation was performed by means of Crile's cannulae, and a considerable amount of blood was transfused. Towards the end of the operation the lad spontaneously expressed himself as feeling better, his pulse was no longer rapid and the blood pressure improved. Subsequently the wound became healthy, no further haemorrhage occurred, and he made an uninterrupted recovery.

Another instance in the clinic of one of us was the case of a girl exsanguinated by repeated haemorrhages from a gastric ulcer. Her physician considered her condition most critical; she was blanched, with a rapid pulse, low blood pressure, and sighing respirations, with restlessness. After transfusion she immediately improved, and made an uninterrupted recovery, with no recurrence of haemorrhage. Several other instances might be quoted from our experience at home were our notes available. Two examples from our hospital in the field at Salonica may be noted in some detail.

Case I.

A corporal, aged 42, admitted to No. 4 Canadian General Hospital on December 17th, 1915, had been knocked down by a motor lorry, the wheel passing over his left thigh and left arm. There was a compound comminuted fracture of the upper third of the femur, and a compound fracture of the humerus above the insertion of the deltoid muscle. In both arm and thigh torn muscle protruded from the wounds, which were of a "bursting" character, and in the thigh, on palpation, the muscles seemed to be extensively torn away from their pelvic attachments. He had lost a great deal of blood, and was in a condition of profound shock. The fractured limbs were secured on splints, with as efficient reduction as his condition would permit. It was impossible to administer a general anaesthetic. Morphine was administered to relieve his pain and combat shock. He rallied somewhat, but remained for some days in a critical state in spite of the administration of normal saline solution.

On Christmas day (one week after admission) his condition seemed desperate and it was determined to transfuse human blood. A donor was easily found and we transfused 815 c.cm. of blood. The patient expressed himself as feeling better; he said he felt "warm," his pallid lips became red, and his condition of utter exhaustion gave place to one of comparative comfort. The pulse became slow, regular, and full. During the next few days improvement in his general condition was maintained. Unfortunately the record of the blood picture before transfusion has been mislaid, but subsequently the record is as follows:

Dec. 26th. Haemoglobin, 36 per cent.; red blood cells, 3,050,000.
Dec. 29th. Haemoglobin, 40 per cent.; red blood cells, 3,700,000.
Jan. 20th. Haemoglobin, 41 per cent.; red blood cells, 3,650,000.
Feb. 11th. Haemoglobin, 58 per cent.; red blood cells, 4,460,000.

The urine was tested for haemoglobin for a few days after the transfusion, with negative results.

This patient left hospital on a hospital ship in good condition; the fractures had united, but a sinus still persisted in the thigh.

Case II.

A second case treated by transfusion in the Canadian Hospital at Salonica was one in which haemorrhage threatened to prove fatal. Pte. H., aged 47, had been operated upon by one of our colleagues for haemorrhoids. The operation performed was excision and ligature. On the third day after the operation a considerable haemorrhage took place; this recurred on the fourth day when, under a general anaesthetic, the area of operation was examined and some additional sutures inserted. The wound looked sloughy and unhealthy. Normal saline solution was administered and the general condition improved and bleeding ceased.

On the fifth day haemorrhage once more occurred, and the patient's case became critical. He was blanched, with rapid pulse, sighing respirations, and exhibited restlessness. It was determined to transfuse him without delay, and he was transferred to the operating tent for that purpose. The pulse was 150 and blood pressure 50. While waiting for the final preparation of instruments, etc., his condition became so bad that we feared he would die ere we started the operation. His pulse was hardly perceptible and very rapid. We transfused 1,000 c.cm. of blood, with excellent immediate results. The actual operation lasted thirty minutes, and when completed the patient had a pulse of 116 and a blood pressure of 96. The improvement was more than maintained. On the following day the pulse was 100 and the blood pressure 110.

The accompanying chart gives a detailed record of the pulse and blood pressure not only before and after, but during the process of transfusion. It will be seen that the response was immediate.

A point worthy of note in this case is that not only did haemorrhage not recur, but the wound subsequent to transfusion took on healthy action and healed readily. On the other hand, while on a previous occasion the patient showed an immediate beneficial response to the action of normal saline solution, then the haemorrhage recurred and the wound remained unhealthy.

Subsequent to the transfusion of human blood in these two cases we tested the urine but found no haemoglobin. In neither case did we find any appreciable immediate increase in the red cell count. In the first case the record has already been given. In the second case the red cells before transfusion were 3,000,000, with 50 per cent. haemoglobin, and three days subsequently the record was practically unaltered, as it was also three hours after the operation. In both cases a normal blood picture was, however, slowly attained.

These cases sufficiently illustrate the beneficial effect of the direct transfusion of human blood. It may be added that no harm resulted to the donors from the withdrawal of such seemingly large quantities of blood. They complained of little or no discomfort, and were able to return to duty after a brief interval.

METHOD.

The apparatus used is very simple. The accompanying diagram illustrates it sufficiently well. A glass cannula is introduced into the median basilic vein and is attached to a 20 c.cm. glass syringe by an intervening piece of rubber tubing. One glass cannula is placed in the proximal end of the vein of the recipient and another in the distal end of that of the donor. There should be at hand, if possible, ten syringes. These are all sterilized by heat and are all coated internally with liquid paraffin. This is accomplished by first dipping the plunger of the syringe in the paraffin and then, after attaching the tube and cannula, the paraffin is drawn up

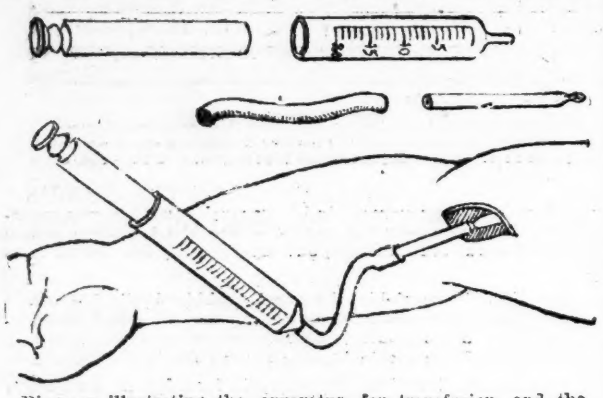

Diagram illustrating the apparatus for transfusion and the method of its employment as described in the text.

through the whole apparatus and expelled. An essential part of the procedure is to prevent any stagnation in the flow through the cannula during the operation. This is accomplished by using normal saline solution as a substitute for blood where a syringeful of blood is not available. Thus, for some reason the assistant who is drawing off blood from the donor may encounter some momentary cause of delay; under such conditions the surgeon takes a syringeful of normal saline solution, and by slowly pressing the piston of the syringe, keeps a current of fluid moving in the cannula of the recipient until such time as the syringeful of blood is available.

The uncoupling of the syringe is always made at its junction with the rubber tubing; pressure on the tubing between thumb and finger is sufficient to control the flow during the process.

A current of blood or normal saline solution is constantly kept up. The amount of normal saline solution thus introduced is negligible, as it is introduced very slowly. Conditions may arise where there is some delay which necessitates the similar use of normal saline solution in the case of the donor. Here, too, the current of flow must be constant. Another point of some importance which one learns by experience is that after about 500 c.cm. have been transfused it is advisable to employ syringes newly coated with paraffin, otherwise there is a tendency to clot. The operation may be carried out very rapidly and, in our experience, without difficulty. One great advantage over any method in which the donor and recipient are buckled together by cannulae is that both individuals are free to move about, and are able to alter their position, or take a drink, etc., without interfering with the operation. Those who have tried both methods will realize the tremendous advantage in this, particularly if the recipient is very ill.

The apparatus we have described is not new. The principle of the syringe and cannula method was first brought to our attention by Captain L. Bruce Robertson, one of our colleagues in Toronto at the Hospital for Sick Children there. He had employed it in a considerable number of instances with most gratifying results in such cases as "haemorrhage in the newly-born," and in haemophilia. Captain Robertson in turn obtained the idea from one of the New York clinics. Unfortunately we are unable to obtain the literature which would enable us to place the credit where it is due.

ITS VALUE IN MILITARY SURGERY.

The advantage of the direct transfusion of human blood in the cases of severe haemorrhage which we encounter in the emergencies of military surgery cannot, to our minds, be overestimated. In cases of secondary haemorrhage with sloughy wounds it is the ideal treatment, and has great advantages over normal saline solution. We know that the latter diminishes the coagulability of the blood while the former increases it. Further, the transfusion of human blood acts locally upon the wound, and induces healthy reaction there. Lastly, we have reason to believe that all the elements of transfused blood function in the recipient. If such be the case it is undoubtedly the ideal therapeutic measure in haemorrhage, and in cases where there is shock *plus* haemorrhage.

Recent articles show that haemorrhage is one of the main causes of the fatal issue in bullet wounds of the abdomen—most writers indeed placing it as the chief cause of death. If such cases live long enough to reach the operating table their chances of recovery would undoubtedly be vastly improved if transfusion of human blood were undertaken either while the operative procedure were in progress or immediately afterwards. The symptoms due to haemorrhage and shock will be lessened and immediate beneficial results will be obtained.

Our former colleague, Captain L. Bruce Robertson, has successfully demonstrated the value of the treatment in Northern France, where he has employed it in No. 2 Canadian Casualty Clearing Hospital. Unfortunately we cannot give details of his cases, but in private correspondence he asserts that the results obtained have been most gratifying. The apparatus is simple and could well be employed in hospital units near the front. Captain Robertson was prepared to carry it out in a field ambulance unit if necessary.

NOTE.—Since preparing this paper for the press we learn that Captain Robertson has published the details of seven cases successfully treated in France, in an article entitled "The Transfusion of Whole Blood: a Suggestion for its more Frequent Employment in War Surgery," in the BRITISH MEDICAL JOURNAL for July 8th, p. 38.

TRENCH FEVER: THE FIELD VOLE A POSSIBLE ORIGIN.

BY

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VARIOUS more or less unsatisfactory suggestions have been put forward in explanation of the occurrence of "trench fever" among the troops in the western front. It is the object of this note to suggest still another tentative theory as to the mode of origin of this quite definite condition.

It is now well known that a new disease, to which this name has been applied in default of a better, has appeared among the soldiers in the trenches, and also to a very much lesser extent among the medical personnel of the field ambulances through which the sick are evacuated. New troops occupying an old line of trenches remain healthy for the first four or five days or so, and it is only towards the end of that time—so far as my experience goes—that cases begin to turn up suffering from a fever which, as the experience of the regimental medical officer increases, can be recognized as being of this nature without delaying diagnosis until the temperature curve has been followed over a considerable period.

The question naturally presents itself when a new disease is encountered, Is there any other new condition or association of conditions existing with regard to those attacked by this disease, and, if so, is it possible to correlate it with the presence of the disorder in question? Looked at in this way, it is not difficult to assert that there is such a new condition of biological importance, this being the commensal association (if the term be permissible) with human beings of the long-tailed field vole, or field mouse, as it is commonly called.

The trenches along the western front have for some considerable time swarmed with rats and mice; they haunt the shelters with incredible boldness, while by night they scuffle and squeak in the roofs of the dug-outs, and run freely along the top of the trenches. Rats, as is common knowledge, are the disseminators of plague as well as of the less familiar sokodu, or rat-bite fever (so-called), besides being subject to the bacillus of pseudo-leprosy and acting as the source of trichiniasis by conveying

that infection to the pig, while some years ago the possibility was suggested that they might even act as a reservoir for the virus of rabies. Mice are not generally indicted as disseminators of anything worse than favus. The mice of the trenches, however, are not the ordinary house mice that have always lived in domestic association with humanity, but are mainly field mice of the species particularized zoologically as the long-tailed field vole, a creature which, it is well known, is subject to extensive epizootics of high mortality while living in a state of nature.

These field voles, like certain other creatures—the subarctic lemming, the sand grouse of Tibet, the clouded-yellow butterfly, and so on—seem to follow a vague periodic law of irregular waves of excessive multiplication, and on reaching the summit of their wave of increase they fall victims to the action of another vague law, whereby upon the specific population having exceeded a certain (unknown, but no doubt quite definite) figure to unit area, it adjusts itself with great suddenness, owing to the rise and rapid spread of some virulent infection, the progress of which offers many parallels to the incidence and spread of typhoid and other intestinal infections in the past in crowded camps of soldiers unprotected by appropriate inoculation, or in congregations of pilgrims in the East. The infective agents in these sudden epizootics do not all seem to have been traced, but in the case of guinea-pigs, bred in overcrowded hutches, it is probably the paratyphoid bacillus.

In the trenches field voles have been observed (as is only natural) lying dead in considerable numbers as the result of a gas attack, and the stray trench cats doubtless do something towards keeping down their numbers.* There is some reason to believe that weasels are on the increase in the neighbourhood of the trenches, and from a French source I understand that owls have been seen quarrying the ground near the firing line hunting for mice; but any checks on their increase have as yet been only temporary.†

Field mice have been blamed as the source of a disease now extinct, the sweating sickness or *sudor anglicus* of the Middle Ages, of which a small epidemic, however, is said to have broken out in the south-west of France in the early years of the present century; it seems reasonable to suggest, in view of what has gone before, that they may perhaps be the source from which the infection of this new "trench fever" is derived as well.

There are innumerable opportunities for the spread of infection from the rodents in the trenches, apart altogether from dissemination by their parasites. I have made no flea census of either the mice or the rats in the trenches,‡ but at present fleas give little or no trouble to the troops during their turns in the trenches, though body lice, and to a lesser extent crab-lice, do. The field mice (and the rats), however, run about over their food, get into the men's mess tins at night, and eat their way into the bags of provisions that come up as rations; I have caught a mouse in my own iron ration in its bag. In the food their habits are never of the most sanitary, and even where they do not obviously soil it they nibble here and there where it is not noticed, and rub their bodies over everything as they scramble about. I have even seen the leather lining of the brim of an officer's cap nibbled away by these trench mice (and since writing this they have attacked my own in the same way, and tunnelled a hole into my greatcoat as I lay wrapped up in it for warmth at night), and I have heard, at second hand, of a man's ear being bitten during his sleep; they nibble books and magazines, tear letters to shreds, and make their nests with the fragments; I have even caught them running off with latrine paper to furnish their happy homes. The chances of infection by organisms carried by the field voles in the trenches are endless.

It appears safe to predict that if the increase of these rodents, rats and voles alike, is not checked in some way or other, their rate of multiplication during the warm weather will result either in the excess of this four-footed population overflowing the districts adjacent to the line held by our troops and causing considerable damage to the crops as they migrate from what may be described as their "endemic centre"; or else in the development of a sudden epizootic of some virulent disease which will effectually keep down their numbers. In this latter case, if trench fever has anything to do with these creatures, the possibilities of human infection will, of course, be greatly increased.

* Human beings seem much more easily affected by chlorine gas than are other forms of life. After a German gas attack I have seen larks, swallows, sparrows and blow-flies in apparently undiminished numbers, while partridges were still present near the trenches. Dead rats lay stinking over the top of the parapets and breeding maggots, but all the rats were not killed, and plenty of field voles survived, being less affected than are the rats.

† The Danysz virus has been used to a certain extent against the rats in the trenches; phosphorus, strychnine, and arsenic are too dangerous to be made use of where there are so many human beings; ratting with dogs or ferrets has many obvious drawbacks, but it is said that powdered squills seem to offer some prospects of usefulness as a safe poison for trench rats if laid down well mixed with food. Traps and wire snares are comparatively useless; the rodents are too well fed to be tempted by the former; while humanity forbids the use of such means as cork chippings fried in suet, or the mixture of dry pea-flour with plaster of Paris. The buried pitfall for field mice that is said to act well at home—an empty jam-pot or pickle jar sunk into the ground so that its open mouth is flush with the surface, cannot be made use of in the trenches.

‡ Short-tailed field voles examined in May were infested with ticks.

A CASE OF ULCERATING GRANULOMA SUCCESSFULLY TREATED BY INTRAVENOUS INJECTIONS OF ANTIMONY.

BY

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ULCERATING granuloma, also called ulcerating granuloma of the pudenda, granuloma pudenda, sclerosing granuloma, granuloma venereum or granuloma inguinale, is a disease very rarely seen in England. In some parts of the tropics the condition is, however, far from rare, and causes serious ravages amongst the population. It is very common, for example, in British Guiana, Brazil, and other parts of South America, while it has also been reported from the West Coast of Africa, Australia, India (Madras), South China, and other places.

It is a true venereal disease—for example, is acquired by sexual connexion, but has nothing to do with syphilis or the other usual venereal diseases. The character of the lesions resembles in some ways the type of change seen in lupus or rodent ulcer, and the ulceration most frequently attacks the groins, pubis, and body of the penis in the male, and the labia majora and other parts of the vulva in the female. The glans penis is not so frequently attacked, perhaps, but, as the case to be described shows, does not entirely escape. Once started, the disease slowly progresses and new areas appear.

The lesions are auto-inoculable—for example, from the side of the scrotum to the contiguous thigh, or from one labium majus to the other in the female. The ulceration spreads concentrically, healing or a tendency to healing occurs in the centre, and is accompanied by scarring, resulting in dense fibrous tissue formation. Ultimately the whole of the sexual parts with the perineum and anus become involved, and horrible lesions are produced, which resist most forms of treatment, such as mercury and iodides, local escharotics, and cauterization. The only treatment hitherto found in any way effective has been by *x* rays, which has quite frequently been successful in cases seen in Madras. South American cases, however, have not done so well under its influence, though de Souza Araujo in Brazil reported as recently as 1915 a cure, and at the same time drew attention to the pioneer work of MacLeod and Sequeira in this connexion.

The disease is believed by some to be of protozoal nature; Donovan and Carter in India, Clelaud, Strangman, and others in Australia, Wise in British Guiana, and Flu in Surinam, have all seen and described bodies of an apparently identical nature in the lesions. The true nature of these bodies and their zoological affinities are nevertheless still unknown.

The use of antimony in tropical medicine was first suggested by Mesnil and Nicolle for trypanosomiasis in 1906. Plimmer and Thomson followed this up by employing the potassium and sodium tartarate of antimony in rats infected with such parasites. Subcutaneous injections of this drug quickly cleared the parasites from the blood and

no very serious action appeared to be caused locally. So promising were these results that Sir Patrick Manson tried a similar treatment on some of his human cases in 1907, but the local reaction on the tissues was so severe that it had to be discontinued. He then gave it by the mouth. About this time Broden and Rodhain, and independently of them Leboeuf, tried intravenous injections of tartar emetic in natives of West Africa suffering from sleeping sickness. No bad effects followed and the improvement of the patients was rapid. Still later Kérandel, a French doctor, who had himself become infected with trypanosomiasis, adopted the same line of treatment with completely satisfactory results. Since that time intravenous injections of antimonium tartaratum have been constantly used in cases of human trypanosomiasis under the care of Sir Patrick Manson and Dr. Daniels at the Albert Dock Hospital, London School of Tropical Medicine.

Stimulated by these results, within recent years, different authors have employed antimony intravenously in the treatment of ulcerating granuloma, American leishmaniasis, Mediterranean and Indian kala-azar, and Oriental sore. To Aragao and Vianna, in Brazil in 1913, we are indebted for its use in the first named of these diseases. In one case they gave twenty-one injections as follows: First day 0.05 gram, second 0.08 gram, third to thirteenth 0.1 gram, fourteenth to seventeenth 0.08 gram, eighteenth to twenty-first 0.1 gram, or a total of about 1.8 grams. In another case, a woman, ten injections were given within a period of thirty days. Rapid healing of the lesions took place in both these cases, as in others, the results being permanent.

Terra and Rabello confirmed this work, using the same method of treatment for their cases. Intravenous injections of a solution of tartar emetic, dissolved in physiological saline, were given one every day at first, and then one on alternate days; after a few injections the ulcers began to show signs of healing, and completely disappeared after the fifteenth injection. According to their experiences tartar emetic is a specific for this disease.

Recently Mr. Cantlie asked one of us (G. C. L.) to see a peculiar case of ulceration on a man's penis, which had been treated with antisyphilitic remedies without effect. A knowledge of such cases acquired in British Guiana enabled it to be said that the condition was ulcerating granuloma, and Mr. Cantlie kindly consented to the patient's admission to the Albert Docks Hospital, London School of Tropical Medicine, for treatment by injections of antimony intravenously. Dr. Daniels saw the case before treatment was commenced and confirmed the diagnosis, and full advantage was taken of this chance of confirming Aragao and Vianna's South American work.

History of the Case.—The patient, a man aged 36, had served on the Gold Coast with usual leaves home since 1908; on the whole he had enjoyed good health there.

Previous Illnesses.—Pneumonia left lung 1914, ill six weeks; gonorrhoea 1913, malaria once, no dysentery; climatic buboes fifteen months ago; both groins operated upon; bubo in left groin when young. As far as he is aware has never had syphilis.

Present Illness.—In the beginning of 1916, when on the Gold Coast, he had a casual connexion with a black woman, about whom he knew nothing, never having seen her before nor since. Two days after this a small sore appeared on the under aspect of the glans penis beside the frenum. As this spread, and showed no signs of healing, it was treated with mercury perchloride washes. This did not do very much good, but four and a half months afterwards apparent healing had taken place. Six weeks later, however, when in England, another sore appeared just at the same place. A diagnosis of syphilis was made; three injections of salvarsan, and seventeen injections of mercury were given, but had not the slightest effect on the lesion. It progressed, and two other sores appeared, one on the point of the glans just below the meatus, the other on the skin of the body of the penis a short distance above the glans. Destruction of tissue in all of these was rapid, especially in the initial sore, which soon burrowed into the substance of the glans, and almost penetrated the urethra.

Condition on Admission, May 1st, 1916.—The patient was healthy looking; there was nothing abnormal in the heart, lungs, or abdomen. The liver was not enlarged, the spleen was perhaps slightly enlarged, but nothing of importance. There were old scars in the groins. The urine did not contain albumin, blood, or sugar. The skin was perfectly healthy, and there were no eruptions or spots.

Penis.—A deep crateriform ulcerated and eroded area, over half an inch in its longest diameter, was present on the under surface of the glans penis. This passed into the substance of the organ for a considerable depth, the edges being raw and irregular, with a semi-purulent to purulent discharge coming from the interior. The sore on the point of the penis was circular, ulcerated, but not to any great depth. The sore on the skin of the body of the organ was just commencing. It was oval, and quite typical of ulcerating granuloma. At this time the condition distinctly resembled a rodent ulcer, and, as a matter of fact, this diagnosis had been actually made. Epithelioma was also suggested, but the age of the patient and the history were against this. Former experience of the condition in British Guiana enabled us, as already stated, to diagnose the case correctly as ulcerating granuloma. Wassermann's reaction was negative. The treatment was begun on May 1st, 1 grain of antimonium tartaratum dissolved in 2 oz. of normal saline being injected intravenously on that day.* The patient fortunately had large veins, and the injections could therefore be given directly into the vein, dissection being unnecessary. By this method also the same vein has been used time after time for the different injections. The injections have always been well borne; no rise of temperature has followed them, and, apart from a general feeling of lassitude amounting to a definite seediness on the day of the injection, other symptoms have been negligible. Slight coughing, which so often follows these injections, was not observed in this case. The following table shows the number of injections given, with notes on the appearance of the lesions from time to time. From this it will be seen that the injections were given bi-weekly.

Date.	Dose of Ant. Tartaratum Injected Intravenously	Remarks.
1916.		
May 1	gr. 1	
,, 4	gr. 1	Condition looks a little better if anything.
,, 8	gr. 1½	Distinct improvement of sore on point of glans.
,, 11	gr. 1½	
,, 15	gr. 2	Both sores on glans healing now fast; one on body of penis cleaner, a tendency to healing.
,, 18	gr. 2	Sores about the same, tending to heal, but slowly.
,, 22	gr. 2½	Condition seems a little worse.
,, 25	gr. 2½	
,, 29	gr. 2½	Sore on body of penis in very good condition, that on the under-surface looks worse. That at meatus healing at one side, but poor at the other side.
June 1	gr. 2½	Sore on body healed, that at meatus much better, epithelium spreading in at side. That underneath also much better.
,, 5	gr. 2½	Progressing favourably, epithelium has spread further in, sore at meatus almost half covered; that underneath also much better.
,, 8	gr. 2½	Progress continuing.
,, 12	gr. 2½	Progress continues, but very slow.
,, 15	gr. 2½	Improvement more noticeable to-day after dry dressing.
,, 19	gr. 2½	Slight improvement since last time.
,, 22	gr. 2½	
,, 26	gr. 2½	
,, 29	gr. 2½	Practically cured, only two little places open now.
July 3	gr. 2½	Only one tiny place open at side of sore on under surface. That at meatus healed.
,, 6	gr. 2½	Place still open.
,, 10	—	Tiny spot size of pinhead.
,, 13	—	Same condition.
,, 18	—	Place still open, and looks a little inflamed round edge.
,, 20	gr. 2½	Place if anything a little larger, and looks as if it might spread. Begin injections again to-day.
,, 24	gr. 2½	Place looks better again—almost healed.
,, 27	gr. 2½	
,, 31	gr. 2½	Place completely healed now.
Aug. 3	gr. 2½	Place completely healed now.
,, 7	gr. 2½	Place completely healed now.
,, 17	—	Place completely healed now. No signs of breaking down.

An examination of the table shows that the case under discussion was an even more stubborn one than those described by Aragao and Vianna, for it was necessary to give 53½ grains in order to effect a complete cure. A halt was made at 43½, but as it looked as if the small unhealed place would break out again it was considered advisable to go on with the injections. Four other injections (10 grains) were therefore given, and complete cure resulted, but two additional injections were given as a precautionary measure.

As a result of the injections, then, the course and progress of the disease has been arrested; this bears out Aragao's and Vianna's observations in Brazil.

Since writing this paper a review of a thesis by Dr. de Souza Araujo has appeared in the BRITISH MEDICAL JOURNAL (July 26th, 1916, p. 146). In this it is stated that the author and his colleagues have used the method of intravenous injections of antimony in 25 cases of granuloma, with three relapses; two patients, old and grave cases, dying. Good results are also stated to have been

* Two oz. = 56.8 c.cm.—roughly, 60 c.cm.

obtained by means of *x* rays. We purposely did not employ *x* rays in our case as we wished to try the pure antimony treatment alone.

That the treatment by antimony alone may succeed is thus proved, and this is saying a great deal, as granuloma up to the present time has been a most intractable disease. In the present instance it meant much to the patient, as otherwise, apart from *x* rays, there was nothing left but amputation of the penis.

A judicious combination of *x* rays and antimony injections might be worthy of trial, and might shorten the length of the treatment, which is, of course, very prolonged, and requires a fairly long stay in a hospital. After it was seen that the injections did not cause the patient any great inconvenience, however, he was allowed up the day after the injection, and only took to bed again just before having the next.

It is, perhaps, too early to say yet that relapse may not occur in this case, but the places are so perfectly covered with new epithelium that it seems by no means likely. Workers in the tropics meeting with such cases should certainly try this new treatment, as much useless suffering can be saved, and distinct hopes of a cure can reasonably be held out, especially if the case is seen at an early stage of the disease.

LAMBLIA INFECTIONS IN MEN WHO HAVE NEVER BEEN OUT OF ENGLAND.

BY

A. MALINS SMITH, M.A., F.L.S.,

AND

J. R. MATTHEWS, M.A.EDIN.

IN view of the prevalent idea that infections of *Lamblia intestinalis* are associated with residence abroad, it may be of interest to record the occurrence of this flagellate in two soldiers who have never been out of England. These cases were discovered by us in the routine examination of stools conducted at the Liverpool School of Tropical Medicine.

CASE I was that of a non-commissioned officer who joined the army in August, 1914. Owing to gastric trouble he proved unfit for service abroad and had ultimately to be treated in hospital for gastric ulcer. While under treatment his stool was examined and was found to contain the cysts of *Lamblia intestinalis* in fair number. The patient had previously suffered slightly from diarrhoea. Before he joined the army he was a clerk and had never been out of England. We have been unable to follow this case further, as the patient has been discharged.

CASE II was that of a man called up to join the army on June 5th, 1916. He had six weeks' training and then entered hospital to be treated for diarrhoea. Before he joined the army he was a farmer in Shropshire and had never at any time been out of England. He suffered from diarrhoea at irregular intervals for twelve years. During the more acute attacks he passed four or five or even more stools daily. This diarrhoea was very liable to follow exposure to cold. His stool was found to contain on three successive occasions while he was in hospital many *Lamblia* cysts. This case is being kept under daily examination.

CASE III.—In addition to these two cases relating to soldiers, mention may here be made of the case of a sailor whose stool contained cysts of *Lamblia intestinalis*. As this man has only been out of England for two days, which were spent in Holland, he comes almost into the same category as the two previous cases. Before the war he was a fisherman in the North Sea, and it was during this period that he spent two days in Holland. At the outbreak of war he joined the navy, and was somewhere in the North Sea. He was sent from his ship into hospital suffering from cardiac and gastric trouble. Two examinations of his stools were made. In the first, *Lamblia* cysts were found in very large numbers along with a few free *Lamblia* flagellates. In the second, cysts were still very numerous, but no free flagellates were found. The man recovered from his ailment and was discharged from hospital so that we were unable to follow the case further.

The interest of these cases lies for us in the fact that certainly in the first two and almost certainly in the third the infection of *Lamblia* was contracted in England. As to the probable date and circumstances of the infection, and as to the possible or probable connexion of the *Lamblia* infection with the attacks of diarrhoea we do not make any observations, for on these points the facts at our disposal afford no evidence. It may be observed that it is almost impossible now, and will shortly become quite impossible, to offer any evidence as to whether *Lamblia* is indigenous in England. The presence of the very numerous cases of returned soldiers carrying *Lamblia* will make it impossible to state whether any future case is of native origin.*

We publish this note at the suggestion of Professor J. W. W. Stephens, whose interest in this work we take the opportunity of acknowledging.

A CASE OF INTRAUTERINE SCARLET FEVER.

BY

R. M. LIDDELL, M.B., CH.B.EDIN.,

AND

C. E. TANGYE, M.D.LOND., D.P.H.,

RUGBY.

DURING a recent small village outbreak of scarlet fever in the practice of one of us a case of rather unusual interest occurred under the following circumstances:

Four of the five children of Mrs. B. developed scarlet fever and were removed to the isolation hospital on May 26th. Mrs. B. was expecting to be confined at any time, and was therefore warned to keep away from the children as soon as the first suspicion arose as to the nature of their illness. No doubt, however, some contact took place prior to May 25th and especially whilst the children were in the incubation stage.

Mrs. B.'s child was born on June 6th, and after a thorough washing, which removed all traces of lanugo, was found to be desquamating freely over the whole of the trunk and limbs. The desquamation continued for several days, and the urine showed distinct traces of albumin. Apart from these two features, the child appeared perfectly healthy and is now quite normal. These features were so typical that we agreed on the desirability of notification of the case as one of scarlet fever.

Mrs. B. had been rather unwell during the last week or so of her pregnancy, and complained of a "burning pain inside." She had no sore throat or rash, and her temperature was normal. She is positive that she had a severe attack of scarlet fever when about 10 years old, and describes the desquamating stage vividly.

It would seem that the fetus was infected *in utero* some time prior to May 26th, but that the mother escaped infection through the protection of her previous attack. Presuming the fetus to have been infected from the children of the family, the period elapsing between the infection and the peeling stage must have been only about a fortnight. But as other cases of scarlet fever were present in the village previously with whom the mother may have had direct or indirect contact, one cannot definitely conclude that the course of the disease in the fetus was unusually short.

There does not appear to be a great deal of literature on intrauterine scarlet fever. Galabin states that it has been inferred that the disease may be conveyed to the fetus *in utero* because the child, at or shortly after birth, has sometimes shown desquamation of the skin or other sequelae of the disease.

Goodall says that it is extremely doubtful whether infants have been born suffering from the disease, but they may become affected within a few days or weeks of birth.

Osler's statement that sucklings are rarely attacked is borne out by our common experience. It is a usual practice when a nursing mother contracts scarlet fever and cannot be properly isolated at home, to send mother and infant to hospital. No infant so admitted locally has contracted the disease.

Whilst the rarity of the condition may be somewhat against the diagnosis in this particular case, the clinical facts were so striking that it seemed to us worthy of note.

* Fuller particulars of these and other cases of interest occurring in our investigations will be published later in the *Annals of Tropical Medicine and Parasitology*.

THE California State Board of Health is conducting, in co-operation with the University of California, a malaria mosquito survey under the supervision of Professor W. B. Herms, Consulting Parasitologist to the State Board. The work began on May 10th, and was continued through the summer. Probably three summers will be required for a complete survey of the State. Thus far endemic malaria has been found at a maximum elevation of 5,500 ft., and anopheline carriers have been located. Two or three new species of mosquitos have been found.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE NEED OF A VISION TEST FOR DRIVERS.

THE need for a systematic examination of the vision of drivers of motor cars and horse-drawn carts has been deeply impressed on me while doing duty as ophthalmic specialist to the South London Recruiting Board. At the present time any person, no matter how defective his vision, can obtain a licence to drive a private or trade motor car; there is no vision test made. Without examination, any person may drive a horse drawn vehicle through busy thoroughfares. Taxi-cab drivers have to pass a sight test on first obtaining their licences, but there is no periodic re-examination.

To illustrate the necessity of introducing some form of test, and incidentally to point out the very defective vision of some drivers, I will quote a few of the cases that have come under my observation:

CASE I.—V. T. T., a taxi-cab driver. Vision is $\frac{6}{9}$ in each eye, and the vision cannot be improved with glasses. The corneae are nebulous, and there is old and extensive disseminated choroiditis. Three years ago he obtained his licence at a garage. He was employed there, but was discharged after a month or two because of defective vision. He still drives a taxi-cab.

CASE II.—G. T., a taxi-cab driver, obtained his licence four years ago. Since then he has had several attacks of iritis in the right eye. As a result of occlusion of the pupil, the vision of this eye is reduced to counting fingers at 2 feet. He is still driving.

CASE III.—B. J. T., a coachman, has never worn glasses. He is myopic to the extent of −12 D. There is marked choroidal atrophy, with pigmentary degenerative changes at the macula. An important point in this case is the marked increase of the light minimum sense. This is a common occurrence in cases of higher degrees of myopia. As a result, these people see badly at night. This man has had several accidents while driving.

CASE IV.—H. B. drives a fast-going cart. Vision is $\frac{6}{9}$ in each eye. The right eye can be brought up to $\frac{6}{6}$ with suitable glasses. As a result of old iridocyclitis there is seclusion and occlusion of both pupils, with a secondary cataract in the left lens.

CASE V.—G. G. drives a single-horsed four-wheeled cart. Vision, $\frac{6}{9}$ right, $\frac{6}{36}$ left. There is right internal squint, and fixation is lost in this eye. There is old extensive peripheral choroiditis in this eye. Seven months ago, while crossing a main road, he did not see a tramcar approaching from his right. The tram broke up the cart, but no one was injured.

CASE VI.—H. S. drives a slow-going one-horse cart. He, slowly and with great difficulty, reads $\frac{6}{36}$ right and $\frac{6}{24}$ left. There is nystagmus in all directions of gaze, and the optic nerves are the seat of secondary atrophy. Two years ago a tramcar ran into his cart. The cart was smashed up and the man was in hospital for four months.

CASE VII.—J. N. drives a single-horse cart. Vision $\frac{6}{9}$ in each eye. Right vision cannot be improved; there is detachment of the retina. The left can be improved to $\frac{6}{6}$ with −12 D sphere, and in this eye there is marked choroidal changes, and a very large posterior staphyloma. He complains of inability to see at night, and the light minimum sense is markedly increased. Last year, one night at dusk, he collided with a tramcar. Three months ago a man fell from a tram; the patient's story is that he did not have time to pull up his horse. The result was that the man was killed.

There is no need to multiply cases, but I have notes of many others. The foregoing will show how defective is the vision of some men engaged in driving, and throws an interesting sidelight on a possible cause of street accidents. It seems very necessary that all persons engaged in driving should at least once a year be submitted to a vision test, and this applies equally to men driving slow-going carts, for there is about as much danger, in the mixed traffic of city streets, from men with defective vision driving slow as fast travelling vehicles.

JAMES MCHOUL, Captain R.A.M.C.(T.),
Ophthalmic Specialist, South London Recruiting Board;
Refractionist, Royal Eye Hospital, S.E.
London, W.

MR. AUGUSTUS CHURCHILL, of the firm of medical publishers, J. and A. Churchill, left estate valued at £47,532.

AFTER an agitation of twenty-five years the College of Physicians and Surgeons, Columbia University, New York, not long ago consented to admit women students. Now it is announced that Dr. Rosalie Slaughter Morton has been appointed attending surgeon at the Vanderbilt Clinic, and Dr. Vera Dantschakoff instructor in anatomy.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BOMBAY BRANCH.

Clinical Meeting.

A MEETING of the Bombay Branch was held at the Jamsetji Jeejeebhoy Hospital on June 29th, when Lieutenant-Colonel ASHTON STREET, I.M.S., occupied the chair. There were twenty members and visitors present. Dr. C. FERNANDES showed a case of lichen planus, and demonstrated the points of difference between that disease and syphilis, for which it is always mistaken. Lieutenant-Colonel ASHTON STREET, I.M.S., showed a patient with very large and severe glandular enlargements in the neck, with a small melanotic sarcoma in the inside of the mouth over the left superior maxilla. He also showed a boy whose cystic kidney he had successfully removed, and the specimen. He also showed a twig of the Babul tree, used by Indians as toothbrush, accidentally swallowed by a man from Kathiawar, and successfully removed after opening the stomach. Major E. F. GORDON TUCKER, I.M.S., showed the thorax and uterus and its appendages of an extreme case of osteomalacia. Dr. A. POWELL showed specimens of double ruptured aneurysms of the ventricle, and of ruptured aneurysms of the ductus arteriosus and of the arch of the aorta. Dr. S. R. KOTHARE showed a splint useful for compound fracture of the leg and foot. Dr. J. R. JAGOSE showed some interesting skiagrams on behalf of Dr. S. B. Nayak.

Reviews.

STUDIES IN BLOOD PRESSURE.

THE untimely death of Dr. GEORGE OLIVER prevented him from carrying to completion the third edition of his *Studies in Blood Pressure*.[1] The greater portion of it, however, was found to be ready for the printer and to have been entirely rewritten.

At the request of his widow the preparation of the new edition was placed in the hands of Professor W. D. HALLIBURTON, who has carried out the work as "a true labour of affection and respect," leaving the new and greater part in the same form as it was left by the writer, and supplementing the volume by reprinting from the 1908 edition such parts as were wanting to make the whole subject complete.

The book is prefaced by a short obituary note, and by the reprint in full of an article published in a contemporary journal in January, 1916, in which the present position of sphygmomanometry is fully set forth and its value as a guide to diagnosis and treatment critically examined. The question is often asked as to the practical outcome of mechanical observations on the circulatory apparatus. The article in question supplies the answer in full. Much has undoubtedly been achieved, and, although still more remains behind, the genius of Dr. Oliver will always be recognized as having shown the way by which such knowledge may be acquired and demonstrated. In the present series of *Studies* he does more than justice to the labours of other observers of all nationalities, and in some respects the loyal desire to present all sides of the question may leave the reader in doubt as to the conclusion to be drawn. All users of the sphygmomanometer in ordinary clinical practice must have been occasionally puzzled by widely varying results under similar, or apparently similar, conditions. The earlier chapters of the book are devoted to the consideration of the fundamental data upon which clinical observations must be founded, and a clear comprehension of these must be essential to the intelligent use of the instrument.

Of the many different influences that may be combined to affect arterial pressure, by far the most important from the clinical point of view are the bio-chemical substances

[1] *Studies in Blood Pressure, Physiological and Clinical.* By George Oliver, M.D.Lond., F.R.C.P. Edited by W. D. Halliburton, M.D., F.R.S. Third edition. London: H. K. Lewis and Co., Limited. 1916. (Demy 8vo, pp. 263; 10 figures. 7s. 6d. net.)

formed within the body that have now been proved to exercise a definite influence over the circulatory apparatus. Of these adrenalin is the most prominent, but the action of pituitrin and of the products of putrefaction within the intestinal tract have to be taken into account. A direct connexion between the presence of these and vascular hypertension has not as yet been satisfactorily proved, but experimental evidence is gradually accumulating upon this point. The fact that in almost all cases of hypertension there has been found a greater or lesser degree of kidney change is indisputable, but the relation between the two and its mode of production still continue to be matters of controversy. It is known that adrenalin may pass from the suprarenal medulla to the kidney, and hence those organs are supplied with a larger proportion of it than other parts of the body. Clamping of the adrenal vein was found to arrest the flow of urine, the adrenalin being thereby diverted in excess to the kidney. Dr. Oliver expressed his own impression that the output of adrenalin might exercise a definite influence on the incidence of high tension and that the circulatory disturbances associated with emotional conditions might be due to variations in the amount produced. Hypertension obviously precedes any visible changes in the kidney substance, but it is suggested that other substances, as yet unidentified, may be at work to produce this result. Hypotension, on the other hand, may occur under certain conditions, even in the presence of renal sclerosis.

A full account of the difficulties which may be encountered in reading and interpreting the indications of the sphygmomanometer is followed by a short but important summary of the sources of fallacy. The application of manometric observations under various conditions of disease and its uses in treatment are presented in the same form as in the second edition, with a few notes and additions by the editor and by Dr. Alfred Mantle of Harrogate.

Among the many ingenious instruments devised by Dr. Oliver for the observation and record of circulatory phenomena, the sphygmomanometer holds a prominent place, but the inventor himself would not claim for it any higher value than as an adjunct to personal observation. Throughout the whole work there are many indications of uncertainty both as to methods and results, and it is only when numerous observations tell the same tale that definite conclusions are warranted. The recognition of high tension in its earlier stages has already proved its value in many pathological conditions. Its presence and degree can be far more accurately gauged by the instrument than by the unaided finger, and, although the variations and uncertainties may at present prove too numerous to enable the method to be of direct practical use to the busy practitioner, there can be no doubt that in time to come the sphygmomanometer will take its place as a routine clinical instrument.

MIXED INFECTION IN TYPHOID FEVER.

TYPHOID or enteric fever is one of the acute specific infections in which relapse or rapid recurrence of the disease is particularly common, being met with in perhaps 10 per cent. of the cases. The old-fashioned view of such relapses would be that a reinfection of the patient's alimentary tract with the original infecting agents had, by some mischance, taken place. Alternatively, it might have been held that the second attack was due to the fact that the patient's resisting powers had not been adequately enhanced by the first attack of the disease, with the result that the microbes already present in the alimentary tract or its immediate neighbourhood were able to reinfect the patient and bring on the relapse or second attack. Quite a different view of the occurrence of relapse in typhoid fever is advanced[2] by Dr. GRIMBERG in a work based on the observation of 160 typhoid patients in Paris hospitals. As everybody knows, typhoid fever is closely simulated by paratyphoid fever, of which there are two varieties, speaking bacteriologically—namely, paratyphoid A and paratyphoid B. Dr. Grimberg has been led to conclude that in many cases clinically described as typhoid fever with relapse the infection is in reality mixed, and due to *Bacillus paratyphosus* A or B as well as to *Bacillus typhosus*. He believes that in such patients the invasion of the patient's organism is progressive, as if one of the bacterial varieties present prepared the ground for the subsequent attack by another of the bacteria. In other words, the patient has an initial attack of, say, true typhoid fever due to *B. typhosus;* the relapse or recurrence that follows is often due to an attack of paratyphoid fever. Similarly in cases of paratyphoid fever a relapse may be due to a secondary invasion by the true typhoid bacillus. Such secondary infections Dr. Grimberg characterizes as pseudo-relapses or pseudo-recurrences.

The evidence on which he bases these interesting views is twofold. In part it depends on repeated quantitative examinations of the agglutinating powers of the patients' serum for the three bacterial varieties mentioned. If, for example, a patient has an attack of paratyphoid B fever with a relapse, and the agglutinating power of the patient's serum for *B. paratyphosus* B falls steadily after the initial attack and during the relapse, while the agglutinating power for *B. typhosus* rises considerably during the relapse, Dr. Grimberg concludes that the relapse was in reality a pseudo-relapse, a secondary attack of typhoid following soon after a primary attack of paratyphoid B fever. His second line of evidence depends on particular methods of cultivation of the patient's blood, the object being to make sure by a special technique that apparently pure blood cultures of, say, the typhoid bacillus do not in fact contain *B. paratyphosus* A or B, or both, in addition. One practical conclusion drawn from his work is this—that a mixed vaccine should always be employed in antityphoid inoculation. Dr. Grimberg's paper is full of views, facts, and figures, and his conclusions seem to merit the attention of clinicians and pathologists alike.

DISEASES OF CHILDREN.

THE twenty-seventh annual meeting of the American Pediatric Society was held at Lakewood, N.J., in 1915. A number of interesting papers and reports were read to the members of the society, and are published in the yearly volume of its *Transactions*.[3] The President, Dr. G. N. Acker, in his opening address gave an instructive account of the light thrown on the problems of infantile disease and mortality by the work of the Children's Bureau of the Department of Labor, a governmental establishment. The result of the investigations of the bureau in Johnstown, Pa., was to show that the infant mortality (presumably during the first year of life) was as high as 271 per 1,000 in the poorest and most insanitary section of the town; it was at a rate of 256 where the earnings of the father were less than 10 dols. a week, at a rate of only 84 where the earnings were above 25 dols. a week. In houses where the water had to be carried in the death-rate was 198, as compared with 118 where the houses had their own water supply by pipes. The Census Bureau estimates that at least 300,000 babies die annually in the United States of America, and that one-third of the children born die by the age of 15. Dr. Acker considers that this high mortality is capable of almost indefinite reduction, and discusses the best means for effecting this. He holds that hitherto "too much attention has been devoted to an attempt to destroy infectious material at the expense of a building up of individual resistance by good food and proper hygiene." He proposes a number of remedies, excellent for the individual child no doubt, but less excellent for the parents, the family, and society in general. These remedies include the supply of meals at nominal prices in schools, the forcible and legalized removal of children from the homes of parents with tuberculosis, and the standardization of infant feeding—a subject now in a chaotic condition. Most of the thirty-four papers and reports read to the society were of the clinical type, dealing with problems of infant feeding, the use of the *x* rays in diagnosis, the alleged connexion between chorea and syphilis (of which Dr. Koplik can find no evidence), and with rare or specially interesting cases; a few of the papers were of what may be called the laboratory type. The *Transactions* afford much interesting reading, and give abundant evidence of the activity of the American Pediatric Society.

[2] *Les typhoïdes intriquées : Pseudorechutes—Pseudorecidives.* Par le Dr. Arthur Grimberg. Paris: Imprimerie de la Cour d'Appel, L. Maretheux, Directeur. 1916. (Roy. 8vo, pp. 64; illustrated.)

[3] *Transactions of the American Pediatric Society.* Edited by L. E. La Fétra, M.D. Vol. xxvii. Chicago: American Medical Association Press. 1915. (Med. 8vo, pp. 380; illustrated.)

Dr. G. F. STILL's well known textbook on the *Common Disorders and Diseases of Childhood*[4] has now reached its third edition. It has been brought up to date by such alterations in the prescriptions as have been demanded by the new (1914) edition of the *British Pharmacopoeia*. A chapter on coeliac disease has been added. Dr. Still has seen 24 cases of this rare anomaly. The book shows numerous other and less important additions. It is full of facts, figures, and illustrative cases, and covers a vast amount of ground with great thoroughness. It may be cordially recommended to medical students and practitioners who want a trustworthy practical book on the subject with which it deals.

Vol. vii of the American translation of the massive German textbook on the *Diseases of Children*[5] deals with diseases of the eye and disorders of speech. Needless to say, these subjects are here treated at full length, not to say exhaustively, with the use of large print, wide margins, and thick paper, as in the previous six volumes of this edition. The illustrations, many of them highly coloured, are in general excellent; the so-called "genuine optic atrophy" of Plate XIV should surely have been described as "primary" rather than "genuine." For those who have ample bookshelves and wish for the fullest accounts of children's diseases irrespective of their frequency and clinical importance, this translation should prove highly satisfying.

Children's Nursing,[6] by C. SEYMOUR YAPP, can be heartily recommended with regard both to the nursing and the general management of sick children. We have nowhere seen more useful hints for the help of the private nurse, but the insertion of pages of advertisement into the substance of the book is to be condemned.

SIR PETER EADE.

SIR PETER EADE, who died a year ago at the ripe age of 90, left behind him an autobiography, or rather the materials for an autobiography, which have been piously edited by Dr. SYDNEY LONG, and are now published in a volume of some size.[7] Not a clever man, but an eminently capable man, Peter Eade, the third of the name in lineal succession, contrived to turn to good purpose every ounce of the qualities he possessed, and to attain a success far greater than has been attained by many a cleverer man. He gauged his own qualities exactly. He knew exactly what he could do and what he could not. He never attempted a task beyond his strength, and consequently he never failed in anything he undertook. Of small stature and slight physique, he had yet a splendid constitution. He was never ill. He had great power of work, great industry, and strong common sense. Add to this that he was a most upright, honourable, kind-hearted, charitable, generous, and wide-minded man, and we can understand the confidence reposed in his judgement and in his integrity, the popularity that he attained, and the success that he achieved. His interests were numerous and diverse, and few men have lived fuller lives or contrived to extract out of life more satisfaction. Not that his activity was selfish. Few men have been more public spirited or devoted more time and thought and work to the service of the public. His life was satisfying because he had many interests and was able to pursue them all.

He had a leading consulting practice in the very extensive district of which Norwich is the centre, and since he three times lost heavily by the failure of banks, but yet always lived in good style, and entertained lavishly, his practice must have been large enough to occupy pretty well the whole time of a man of ordinary industry; but to read his autobiography, or to have known the man, it would seem that his practice was little more than an incident in his life. There was probably not a public institution or undertaking in Norwich with which he was not connected. Guardian of the poor, town councillor, alderman, mayor (three times), sheriff, director of the Norwich Union Insurance, director of the Accident Assurance, founder of the temperance society, governor of the hospital and of the convalescent home for children, director of the Public Café Company, chairman of the Library Committee, chairman of the Museum Committee, the list of all his offices would be too long to give here, and in none of them was he a perfunctory official. He left his mark upon every one of them. He was the first man in Norwich to stir in securing open spaces, and it was on his initiative, and largely by his efforts, that Mousehold (Mussold) Heath was secured for the city of Norwich. It was he who led the local forces in the matter of Sir Thomas Browne's statue. It was in one of his mayoralties that the old castle of Norwich was acquired by the liberality of Mr. John Gurney and entrusted to the corporation, which converted it into a museum, or rather, removed the contents of the old museum thither.

Even in so hospitable a city as Norwich, Sir Peter Eade's hospitality was notable and exceptional. In addition to his private hospitality, which was great, he celebrated the holding of all his offices by dinners given to his colleagues, his officers, and to every one who could be colourably held to have a connexion with the corporation, or the museum, or the library, or whatever the institution might be. Every visit of a congress or society, or association, whether the British, or the British Medical, or the Institute of Journalists, or the Church Congress, or the Trade Union Congress, was an opportunity for dinners, or conversaziones, or some form of hospitality. Once a year he entertained seven or eight hundred old people to supper, and he was always contriving some scheme of public or private benevolence.

The editor of his autobiography laments that Eade left behind him scarcely any record of the many interesting people that he met, and the many interesting conversations that he had with them, and we must add our own to the editor's lamentation, and lament also that we hear so little of Eade's early professional years in the time before chloroform. It is doubtful whether there was any other person living last year who had seen a man punished in the stocks, or who remembered rushlights as the common illuminant for kitchen use, the flint and steel as the only means of lighting, or who had collected from his own garden the poppy, hemlock, and henbane wherewith to make the pharmaceutical preparations he employed in his own practice.

The book is well edited and well printed, and is a worthy record of a typical English worthy.

NOTES ON BOOKS.

THE seventeenth edition of that well-known friend of the house-surgeon and dresser, CAIRD and CATHCART's *Surgical Handbook*,[8] has followed the sixteenth at an interval of two years. With the exception that it contains two pages on the subject of antiseptics in time of war, the new edition resembles its immediate predecessor, which received notice in the BRITISH MEDICAL JOURNAL of September 19th, 1914. The book is deservedly a favourite, and enjoys a well-merited reputation. Many of its readers will perhaps wonder at the peculiar spelling ("phymosis") of the word phimosis adopted by the authors (p. 121). Phimosis is derived from the Greek word φιμός, a muzzle. We cannot find any justification for the spelling "phymosis."

It is two and a half years since we published a review of Mr. J. F. BINNIE'S *Operative Surgery*, then in its sixth edition. The seventh edition[9] is 100 pages longer than its immediate predecessor, and contains 160 more illustrations. There are new chapters on cardiac surgery and on retroperitoneal neoplasms; a touch of local colour, happily

[4] *Common Disorders and Diseases of Childhood.* By G. F. Still, M.A., M.D.Cantab., F.R.C.P.Lond. Third edition. Oxford Medical Publications. London: H. Frowde; Hodder and Stoughton. 1915. (Demy 8vo, pp. 861; 54 figures. 16s. net.)

[5] *The Diseases of Children: A Work for the Practising Physician.* Vol. vii Edited by Dr. M. Pfaundler and Dr. A. Schlossmann. English translation edited by H. L. K. Shaw, M.D., and L. La Fétra, M.D.; with an introduction by L. Emmett Holt, M.D. Philadelphia and London: J. B. Lippincott Company. 1915. (Imp. 8vo, pp. 515; 23 plates, 79 figures. 21s. net.)

[6] *Children's Nursing.* By C. Seymour Yapp, Matron, the Poor Law Hospital, Ashton-under-Lyne. London: Poor Law Publications, Ltd. 1915. (Demy 8vo, pp. 131. Cloth, 2s. 6d.; limp cover, 1s. 6d.)

[7] *The Autobiography of Sir Peter Eade, M.D., F.R.C.P.;* with Selections from his Diary. Edited by Sydney H. Long, M.D. London: Jarrold and Sons. 1916. (Demy 8vo, pp. 211. Illustrated. 7s. 6d.)

[8] *A Surgical Handbook for the Use of Students and Practitioners, House-Surgeons and Dressers.* By F. M. Caird, M.B., F.R.C.S.Edin., and C. W. Cathcart, M.B., F.R.C.S.Eng. and Edin. Seventeenth edition, with Appendix. (Fcap. 8vo, pp. 379; 208 figures. 8s. 6d. net.)

[9] *Manual of Operative Surgery.* By J. F. Binnie, A.M., C.M.Aberd., F.A.C.S. Seventh edition, revised and enlarged. London: H. K. Lewis and Co, Limited. 1916. (Roy. 8vo, pp. 1378; 1,597 figures. 32s. net.)

far removed from America, is furnished by Mr. W. S. Sutton's "Appendix on War Surgery" at the end of the volume. As in its predecessors, great care has been taken to avoid the perspective of a textbook in which the common operations of surgery must be emphasized, while the unusual operations are briefly dismissed. Mr. Binnie's constant endeavour has been to help the surgeon when he is in trouble, and the bulk of the book is therefore devoted to the difficulties and rarities of surgical practice. It contains a vast amount of information, collected from the literature of surgery for the most part and illuminated by the author's own experience, and seems well up to date as well as encyclopaedic.

The exhaustion of the second edition of Dr. T. LEWIS'S book, *Clinical Disorders of the Heart Beat*,[10] has given him the opportunity of making a few verbal emendations in the third edition, adding a short note on the influence of auricular fibrillation upon thrombosis and infarction, and referring to the view of Dr. White of Boston that alternation of the heart is as frequent as auricular fibrillation. In other respects the third edition is identical with the second.

Professor MAXWELL-LEFROY'S pamphlet on the *Extermination of Flies, Lice, and Other Vermin*,[11] gives an account of some of the more trustworthy methods of preventing the multiplication of noxious insects, and destroying them in wards, trenches, or on the person. This account is thoroughly practical, and not overburdened with alternative measures or formulae, and will prove useful to those whose work bring them in conflict with these insects. The sections on the flea and the bug are so short as to be of no very great value. One feels that, despite all that has been done or written during these last two years, the "minor horrors" will still have the upper hand.

[10] *Clinical Disorders of the Heart Beat.* By T. Lewis, M.D., D.Sc., F.R.C.P. Third edition. London: Shaw and Sons. 1915. (Demy 8vo, pp. 128; 54 figures. 5s. net.)

[11] *Measures for the Avoidance and Extermination of Flies, Mosquitos, Lice, and Other Vermin.* By H. Maxwell-Lefroy, M.A., F.Z.S., Professor of Entomology, Imperial College of Science and Technology. Second edition, revised for the tropics. Calcutta and Simla: Thacker, Spink and Co.; London: W. Thacker and Co. 1916. (Demy 8vo, pp. 17; 5 figures. 1s. net.)

MEDICAL AND SURGICAL APPLIANCES.

A Wristlet Ligature Holder.

MR. VICTOR BONNEY writes: It will interest Mr. Percival Cole to learn that I designed, and have been using for three years now, a wrist ligature carrier on the same principle as that described by him in your issue of September 1st. The reel in my carrier is made of glass, and hence I have not experienced the drawback in regard to iodine catgut which he mentions. I can fully confirm the usefulness of the device, but to obtain its full advantage the surgeon must be able to tie the single-handed knot. The war has delayed me in publishing an account of the special operative technique for which I invented my ligature carrier, but I hope very shortly to do so.

MEDICINAL AND DIETETIC PREPARATIONS.

Emetine Bismuth Iodide.

THE firm of W. Martindale, manufacturing chemist, asks us to state that it is able to supply emetine bismuth iodide either in powder or in stearettes containing three grains; this name is applied to a method of coating drugs which the firm considers to be superior to the use of keratin. The name is derived from the fact that the coating contains stearic acid.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee held on August 8th, twenty-three cases were considered, and £201 10s. granted to eighteen of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 25, of M.B.Oxon., M.R.C.S.Eng., who joined the R.A.M.C. on qualifying in 1914, and was killed in action on July 13th, 1916. Applicant is left with two children, aged 4 years and 11 months, totally unprovided for, and up to the present has not received any pension or allowance from the War Office. Voted an immediate grant of £10, and referred to the Guild, and to other organizations that will probably help until the War Office pension is arranged.

Widow, aged 36, of M.R.C.S.Eng. who died in June this year after four days' illness from diphtheria, and left his wife and two daughters, aged 14 and 16, quite unprovided for. Lives in own house, which is heavily mortgaged, and her solicitor informs her that when the debts are paid there will not be anything left. Husband's mother, aged 81, is also dependent on her. Requires some immediate help. Voted £10, and referred to the Guild.

Daughter, aged 64, of M.R.C.S.Eng. who died in 1892. Applicant, whose general health is bad and her eyes very weak, has for some years lived with a widowed sister who is a teacher in France, but owing to the increase in the cost of living she cannot continue to keep her. Only income an occasional small gift from her brother. Her father for many years subscribed to the Fund. Voted £10.

Daughter, aged 67, of M.D.Glas. who died in 1871. Until the war commenced was able to make a bare existence by giving music lessons. Too old to obtain other work. Her sister is an annuitant of the fund. Voted £10.

Widow, aged 49, of M.R.C.S.Eng. who died in 1906. Applicant's health is very bad; she was left with an income of only £22 per annum, and a young daughter who is at the Drapers' Company School, but home for holidays. Her rent is paid by a brother. Owing to the high price of food she is in difficulties. Voted £10 in two instalments, and referred to the Guild.

Daughter, aged 69, of M.R.C.S.Eng. who died in 1869. Was left without means, and managed to earn a living as a governess until ill health and old age overtook her. Only income two pensions, a total of £45, from other societies, and she has a great nephew aged 4½ years dependent on her. Received some help ten years ago. Voted £5, and referred to the Guild.

Daughters, aged 44 and 52, of L.S.A.Lond. who died in 1903. One suffers from epilepsy and the other from rheumatism and persistent headaches. Joint income only £48 per year. Relieved eight times, £95. Voted £18, in twelve instalments, jointly.

Widow, aged 58, of L.R.C.P.Glas. who died in 1902. She was left entirely without means, with two young daughters, who are now earning a little and paying for their board. The applicant is able to earn about £20 per year by needlework. Relieved ten times, £106. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

HEALTH OF LONDON.

ONE of the wonders of the world is London. There has never been such an aggregation of people in such an area before, and there has never been a city with a better health record than modern London. Therein lies the wonder. The orange book of the Medical Officer of Health for London gives some information as to how this is done.* Londoners are accustomed to gird at the chaotic arrangements attending the local governance of their county and its many boroughs, and if that complaint be justified (and few who attempt to master the several Acts of Parliament that ordain the work of these many authorities will fail to realize that it is) then there is the more credit due to the men who get such excellent results out of such a machinery. The medical men in charge of the public health administration of London may well be proud of their work, and go on with it unwearied in well-doing.

The report for the year 1914 follows the usual practice. It is illustrated with charts, many of them so good that their message is conveyed without the necessity for reading the text. There is one point on which we would venture to suggest there is room for improvement. There is no index. There is a table of contents, but this is not sufficient to give facility in hunting up any point of particular interest; and since the report covers the work of several departments, a general index would bring the report of the work of these several departments together.

VITAL STATISTICS.

The population of the County of London reached a maximum on the census of 1901. There was a slight decline recorded in 1911. The estimated population for mid-year 1914 shows a further small decline. This is held to be the result of the very great difficulty experienced by poor persons with four or five children in obtaining accommodation in tenements within the county. The young married persons move outside the county area. Similar migration of population is held to explain many of the curious anomalies of sex distribution. London attracts females of the ages of 25–35 in greater degree than males.

* The Annual Report of the London County Council, Public Health, including the report of the County Medical Officer of Health and School Medical Officer, Main Drainage, Housing of the Working Classes. London: P. S. King and Son, Ltd. (Price 2s. 6d.)

A reverse movement takes place when there is ill health. It has often been pointed out that, especially in the case of females, the mortality of young adults from phthisis is understated in large towns and overstated in rural areas, owing to the fact that young immigrants to the towns when disabled return to their homes in the country, and in many cases die there. This fallacy in the returns is not restricted to phthisis, and it is not susceptible of full correction. On the other hand, young women in rural areas show a higher mortality from appendicitis than the town women, and the explanation of infection in the towns and death in the country will not apply for an acute disease like appendicitis.

The expectation of life for London men and women is greater in the latest returns than ever before; the increase is found for all periods for the women and nearly all for the men.

The marriage-rate for the year was higher than any year since 1874, no doubt the phenomenon is due to the war. The decline in the number of marriages of "infants" continues, although there is some indication of a pause. The birth-rate continues to fall. It is now 24.3 per 1,000, as against 25.0 for the years 1909–13. There is scarcely a metropolitan borough that does not show a decline; only one shows a small rise, and that is Chelsea.

The death-rate is again very low, only 14.4 per 1,000, against 13.7 for England and Wales. Shoreditch still has the highest rate, and Lewisham the lowest. The first quarter of the year has the highest incidence; the second the lowest.

The effect of London migration on the birth-rate is discussed. It is pointed out that the young women of to-day cannot fairly be compared with the young women of London of fifty years ago, and differ very widely in respect of the extent to which they may be expected to contribute to the London birth-rate. An obvious difference in this respect is due to the fact that the large unmarried domestic servant class consists of women who in very many instances when they marry leave London; there is, moreover, a distinct selective influence exercised, under modern conditions of London life, which materially affects the constitution, as regard social status, of the young married women transferred from the country to London. The young early Victorian married women of child-bearing age cannot, therefore, legitimately be compared with the married women of like ages to-day.

The infant mortality-rate again shows a fall; it is 104 per 1,000 births, as against 107 for the last quinquennium. Shoreditch has the highest rate and Chelsea the lowest. The third quarter of the year takes the heaviest toll. Wasting diseases account for the greatest number of deaths, premature birth being the chief primary cause, then debility and marasmus, next comes diarrhoea, and infectious diseases follow a long way behind. There is a fall in the incidence of deaths from nutritional causes but a small rise in the effects of diarrhoea. The Registrar-General in his annual report for 1913 commented on the low rate of mortality from abdominal tubercle in London, whereas meningeal tubercle causes a heavier mortality than in other classes of area. The explanation is thought to lie in the better certification. The possibility that the improved milk supply accounted for the difference is negatived by the fact that in Manchester clean milk for an even longer period has not brought about an equal decline.

EPIDEMIC FEVERS.

Small-pox.

Especial care has been taken owing to the fear of the importation of infection during the war. Cases were discovered at the Port of London on entry, but, owing to the measures taken, no ill consequences followed. The danger of the introduction of infection in the unvaccinated state of the community, especially in densely populated regions, is great. In the last year recorded no less than 41 per cent. of the children born were unaccounted for as regards vaccination. The failure was highest in the poor quarters—Stepney 64, and Bethnal Green 55.9 per cent.

Measles.

There is an interesting return of the values of two different systems of notification coming from Paddington. There was in that borough a system of notification before the general order came into force. For a time two systems were running together. Cases occurred in 95 houses, and 87 per cent. of them contained school children, 78 per cent. were reported through the school organization, whereas only 66 per cent. were made known through compulsory notification. "These figures show that under a school system almost all the cases concerning which knowledge is of practical value come under the notice of the sanitary authorities and school authority." A similar double notification of whooping-cough occurred in Lambeth; 72 per cent. of the cases were discovered through the schools, as against 53 through compulsory notification. In many cases the schools informed the sanitary authority before a doctor had been called in.

Scarlet Fever.

The rate for the year was slightly higher than the last quinquennium. Females are the more often affected, but the death-rate is higher in the males. A steadily increasing proportion of cases are admitted to the Metropolitan Asylums Board hospitals.

"Vermin Inquiry."

In studying the relation of flea prevalence to distribution of scarlet fever in London in recent years two main preliminary considerations are mentioned: (1) Scarlet fever is wont to display major waves of prevalence in which the interval between crest and crest is some six to eight years. A wave crest due in 1914 appeared. There is found to be a correspondence in this wave curve with one showing the prevalence of fleas. (2) Scarlet fever displays a remarkable inverse correlation with rainfall; on the whole, there is a general correspondence between the annual prevalence waves of dryness and scarlet fever. A similar correspondence has been noted in India for rat fleas. In the educational section of the report there are further observations on this point. It is observed that the wave of flea incidence precedes that of scarlet fever by some three to eight weeks. It is further noted that there is a persistence of infection in certain schools and in certain classrooms of those schools. In this connexion the chart showing the age incidence of scarlet fever is of much interest. The curves for two London boroughs are given, one borough of the worst social conditions, the other of the best. In the worst borough the incidence of the fever was highest in the youngest years, the peak was sharp, and the decline fairly rapid. In the best borough the rise was delayed and the decline slower. By contrast the curves of two sets of schools showed that the children in a group of the poorer class schools had less fever than those of the better class; presumably the poorer children had had the fever before joining school or had become immune to flea bites.

Typhoid Fever.

There was a smart outbreak in one part of London at the turn of the year 1913–14, investigations narrowed the focus of infection to one particular establishment, and suspicion was directed to the food supply and the kitchen arrangements generally. As to the way in which, if it were at fault, the food supply became infected, no certain conclusion could be reached. Out of a total number of 789 cases notified in London in 1914 information was given in some 400, and the ascribed sources of infection were:

Fried fish	7	Wearing clothes of previous case	1
Shellfish	8	Contracted abroad	38
Other fish...	26	Contracted in country ...	10
Watercress	22	Contracted from cases in house	40
Other food	19	Contracted from other persons	20
Water supply	7		
Drainage	8		
Smells	4		

There is given a most interesting and critical review of the changing fashions of etiology during the past fifty years. In the Spanish-American and South African wars flies were believed to be largely concerned in spreading the disease; in Germany the healthy carrier is held to be all-important; in Scotland, milk; in Belfast, cockles; in other towns, mussels; in London fish has been held to be a not infrequent source of infection; in some of the large English towns, public water services. The London sources of infection appear to be the "trash" sold in the streets, and evidence points to infection being brought into London in the large majority of cases by fish and shellfish coming, generally speaking, from a considerable distance. The great improvements as regards sanitation effected in the

last fifty years, and particularly in the last thirty years, have made London itself an eminently unfavourable field for growth and cultivation of the typhoid poison; the areas from which infection is derived are no longer near at hand, but are to be found on distant polluted foreshores and in remote estuarial waters. The question was raised as to the likelihood of importation of infection into London by soldiers and refugees coming from the seat of war, and during the later months of 1914 there were some alarmist rumours as to the spread of the disease by persons who had recently arrived from the Continent. The experience acquired subsequent to the South African war and the knowledge gained of the common method of spread of typhoid fever in London made it clear that these fears were groundless. Altered nomenclature and better means of diagnosis, such as the extended use of the Widal test, is held to be partly accountable for a decline in the incidence of the disease. The whole of this section of the report is well worthy of study, and the tentative finding of the health department of London that the importation of cheap and nasty food is at the root of cases that occur in London should be carefully examined.

Cancer.

In almost all the epidemic diseases there is an unenviable prominence of boroughs like Shoreditch and Bethnal Green; again and again one or other of these boroughs heads the list of returns. But this is not the case with cancer. The figures for 1914 confirm previous conclusions —that there is no relation between cancer mortality and social condition, whether measured by the degree of overcrowding or by the percentage of children scheduled for compulsory education, and in this respect the behaviour of cancer differs altogether from that of phthisis.

Cerebro-spinal Meningitis.

The year gave the lowest return of cases since the disease was made notifiable; 73 were notified and classified as follows: Cerebro-spinal meningitis 40, posterior basal meningitis 19, purulent meningitis 2, pneumococcal meningitis 2, doubtful 11. The age distribution shows how heavy is the incidence in the first few years of life. The Council's medical officers visited 51 cases with a view to assisting in diagnosis and to obtain material for bacteriological examination. Specimens were taken in 40—in 28 the organism commonly associated with the disease was found, in 12 cases the meningococcus could not be found; 329 contacts were selected for bacteriological examination by reason of their having been closely associated with the patients. Of the total number, 31, or 10 per cent., proved to be carriers of the meningococcus. Extended inquiries are being carried out into the effect produced by these "carriers," but up to the present no untoward effects have been discovered.

Influenza and Cerebro-spinal Fever.

Attention is called to the inter-relation of these diseases. Records of the fifteenth and sixteenth centuries show the conjunction of "sweating sickness" and "febrile cerebritis." In recent attacks the number of cases giving a history of contact with or affection from influenza "is certainly large enough to afford justification for further examination." "*It is greater than might have been expected as a matter of chance.*" (Italics in original.) One difficulty in correlating the two diseases is that there are no returns for influenzal infections, only for deaths. To obtain data on the point examination was made of the returns of illness furnished by the various departments of the London County Council concerning 3,000 officials in its employment. It is acknowledged that this is no random sample of the London population, but the fit of the case curve based on these figures with the mortality curve for London is remarkably close. Taking the influenzal rate for the 3,000 as representative of the London population, it is found that the chance of influenzal infection is very small, and the chance of a close occurrence of attacks of influenza and cerebro-spinal fever infinitesimal. Whereas the actual returns were high, no fewer than 27 of 462 cases of the fever gave a history of suffering from influenza within seven days of the onset of the illness.

The seasonal maximum of influenza usually occurs in winter or very early spring, so also with cerebro-spinal fever; cases of poliomyelitis and polioencephalitis occur at all seasons of the year, but the numbers are greatly increased during the late summer and autumn months. Of the last-named diseases the greatest incidence was in the Stepney area; this may be accounted for by the attention paid to exact diagnosis at the London Hospital. No evidence has been discovered to show that there is any association between the incidence of poliomyelitis and insanitary conditions.

HOUSING.

The death-rates among tenants of the Council's buildings relate to dwellings within the county which were occupied during the whole of the year 1914. The population comprised 30,867 persons, the death-rate at "all ages," after correction for age and sex distribution, was 8.8 per 1,000, compared with 14.4 for London. That is a lower return than for the best borough of London. The figures for individual diseases are better all round, with the one exception of that for "tuberculous diseases other than phthisis," for which the Council dwellings return is 0.4, against 0.3 per 1,000 for London.

THE MENTAL DEFICIENCY ACT.

The measures taken to carry out the obligation of the Act are stated; 995 cases came under examination, most of them through the agency of the education authority. A detailed return of the characters presented by the first 600 cases shows how little there is in "type." No less than 306 are entered as of no type; next come the epileptics, 76; whilst the "characteristic physical types" come far away down the list in small numbers and in many varieties.

MIDWIVES.

The fee a midwife receives for attending a confinement and for the subsequent ten days' visiting varies in different localities from 7s. 6d. upwards, but the usual fee of 10s. to 15s. is expected. The charities employing midwives pay 5s. to 6s. a case, and provide the midwife with registers, forms, antiseptics, etc. It is apparent from the number of cases taken by midwives and the small fees paid that very few can rely solely on their practice as a means of livelihood. Many of them are married women who do not trouble to obtain large practice; a few keep lying-in homes; others, especially those with a fairly large practice, are approved by the Central Midwives Board to give practical instruction to pupils preparing for the Board's examination. The pupil resides with the midwife and goes with her to cases. The fees for pupils are usually about £1 1s. a week, and this includes board and lodging in addition to the practical instruction given by the midwife. From information received under the Notification of Births Act, it is computed that (excluding the cases attended by midwives in infirmaries) some 30,000, or 25 per cent. of the total births in London, are attended by midwives. There is a general tendency to an increase of the calls made by the midwives for medical help; such calls were made in 11.78 per cent. of the cases, in 6.89 per cent. on behalf of the mother, and in 4.89 per cent. on account of the child. The number of cases of puerperal fever notified in the county in 1914 was 393; 113 proved fatal, a case mortality of 28.7 per cent.

Ophthalmia Neonatorum.

Five hundred and thirty-seven cases were investigated by the committee; 456 were reported completely cured. In 6 there was impairment of vision; in 1 there was a definite history of gonorrhoea in both parents, the onset was on the day of birth and medical aid was obtained on that day; both eyes were affected. "Visits to hospital were not continued, and there was loss of sight of both eyes." A history of vaginal discharge was obtained in the mother in 213 cases, or 39.6 per cent.; 20 babies died whilst suffering from the disease; in 53 cases the result was unknown owing to the removal of the parents, who could not be traced. The Council has endeavoured to secure accommodation for the mother and infant, so that while the child was being treated it would not be deprived of being breast-fed, but only two institutions have at present sufficient accommodation for this purpose.

EDUCATION.

During the year 294,026 children were examined by the school doctors, and of these 101,432 were found to require treatment for one or more defects. The parents were present in 68 per cent. of the cases examined. Dr. Thomas,

of the head office staff, has examined the returns in comparison with previous years. There is found a gratifying improvement in many directions. The number of children with tonsils and adenoids requiring operation is lower than formerly. There is a steady improvement in neatness and cleanliness of all children, which reflects great credit upon the unremitting efforts of the school nurses, head teachers, and care committees. "In comparing the incidence of defect upon age and sex it is found that, although starting school life on an equality with boys, the girls at the leaving age show an excessive incidence compared with boys in respect to visual defect, deformities, heart defect, anaemia, and nervous disease. This excessive incidence suggests that girls as a whole spend a less healthy and hygienic life than boys, and one of the problems of hygiene remaining to be solved is how to give the girls an equal place in the sun with the boys."

There is an important growth of the provision for dental treatment; the provision authorized for the year 1915 was for 63,000 cases, or roughly for three and a half times as many as two years ago. For all classes of ailments treated under the Council's scheme the centres, including hospitals, at the end of the year numbered 42, providing for 98,976 children, as against 34 centres, providing for 84,359 children, at the end of 1913.

The personal cleanliness of the children showed an improvement. Entrants are still cleaner than the other groups, by some 5 per cent., so that there is still evidence that the complaint of the cleaner parents that their children "bring things home from school" is justified. No mention is made of the influence of cloak-rooms in the dissemination of vermin, and we do not recollect that attention has been drawn to the matter, but there is good ground for making some distinction between the cloak-room accommodation and also the sitting places of the known dirty children and the cleaner. There is no necessity that the distinction should be known generally, but, for the protection of those mothers who keep up a constant and valiant combat against vermin, there is much to be said for the suggestion.

There is an interesting comparative return of the vision of the younger and elder children. Boys and girls at the age of 8 to 9 years who get full vision in both eyes total 42 and 37 per cent. respectively. Boys and girls who leave school get full vision in superior numbers, reaching 54 and 47 per cent. respectively. This improved vision is probably due to the influence of education in sharpening the child's wits. On the other hand, the number of children whose vision falls short of the standard, and only attains $\frac{6}{12}$ or worse, increases with age, boys and girls aged 8 to 9 total 18 and 20 per cent., but on leaving they total 20 and 23 per cent. respectively. The middle ranks of those with $\frac{6}{9}$ vision are depleted—some whose early failure was merely due to lack of judgement improve and get full vision before they leave; others whose failure was due to a defect in the eyes tend to get worse with the strain of school work. The special incidence of visual defect amongst girls, and especially girls of the older age, as compared with boys, is to be noted. There can be little doubt that this is due to some fault in the training of girls tending to deterioration of vision.

The percentages of phthisis and other tuberculous diseases remain exceedingly low for children examined in the age groups. There are distinctly more cases, however, found at the leaving age than at the other ages. The differences between the sexes in phthisis are so small as to be negligible; there is, however, a distinctly greater incidence of boys in every age group in the case of other tuberculous diseases. It is interesting to note that amongst children examined as urgent cases 571, or 3 per cent., were found to be suffering from phthisis, and of the children out of school 917, or 9 per cent., were certified to be suffering from the same disease.

The number of children returned as suffering from rickets was 3,928, or 1.72 per cent., as compared with 2.1 per cent. in 1913 and 1.69 per cent. in 1912. At each age the results of rickets are much more often seen in boys than in girls; and, as school life progresses, they become in each sex more difficult to recognize as such. But there is a gradual increase in non-rickety deformities during school life, the increase being heaviest in the girls on leaving school. This exceptional increase in older girls is due to spinal curvature, and is associated with the hygienic defects in the training of girls as compared with boys, producing in the former excess of severe visual defect, of anaemia, and of heart defect as school life proceeds.

All cases reported by the doctor as suffering from malnutrition of a certain degree are subject to special investigation. These children are considerably under the average height and weight for their age. Comparing children of equal age the fall below the average may be as great as 22 cm. in height and 10 kg. in weight. Height is not so frequently below normal as weight, and 40 out of 150 were above normal height. Many of these children are overgrown and thin. Change to a suitable diet makes a marked difference in both height and weight. The most striking instances recorded were: Girl aged 8½, was given milk and the home was visited; nine months later weight had increased 7.8 kg. Boy aged 6 years and 9 months, early illness, home poor, milk at school, attended tuberculosis dispensary, gained 6.6 kg. in seven months. Other less striking cases are quoted. But all did not gain, some lost weight under similar treatment and no adequate cause could be found. Chief amongst the cause of malnutrition are cited poverty, tuberculosis, congenital debility; whilst such causes as neglect, improper feeding, and rickets, come a long way down on the list.

The scheme for the treatment of children found on inspection to be defective includes 12 hospital and 30 medical treatment centres, providing in the aggregate for 98,976 cases. When the scheme was started in 1910 provision was made for 12,000 children. For the year 1915 provision is made for no fewer than 125,496 children; the large increase is due to the extension of dental treatment, which now covers 63,140 cases. A table showing the provision and the usage of the facilities provided shows that accommodation for eye cases is still insufficient to meet the demand.

The effective co-operation of the medical officers of the clinics and the school medical officers has been productive of many advantages to the children, and not less in the case of defective children, where the defect is so great as to necessitate some form of special education. The difference between this effective co-operation on the one hand and the difficulties attending arrangements for children who are being treated in hospitals was so great that the Council circularized all the eye hospitals, giving an account of the special provision made for short-sighted and partially blind and blind children. The circular letter asked for the co-operation of the hospital surgeons in the matter, for "such children are usually far better in attendance at school, where they spend a part of the day under reasonably good conditions and are subject to discipline, than at home, where conditions are often unsatisfactory. If excluded, it is difficult to maintain supervision over their mode of life, unless they are really ill, and they tend either to loaf aimlessly about the house and streets, or they are made to do household drudgery or other unsuitable work."

A return of the conditions of ill health responsible for prolonged absence from school is given. Rheumatic conditions, acute rheumatism, heart disease, and chorea head the list with 24.31 per cent. Tuberculous conditions follow with 13.36 per cent.; anaemia and debility account for 12.34 per cent.; diseases of the eyes, 8.82 per cent.; those of the nose, ear, and throat, 4.71 per cent.; infectious diseases, 3.58 per cent.; ringworm has fallen to 1.83 per cent., or half the average, and the time of absence from school is distinctly shorter than formerly.

TREATMENT OF TUBERCULOSIS.

The account given of the arrangement for the State control of tuberculosis does not suggest that all is for the best. The Council is responsible for the institutional treatment of such cases, but the dispensary treatment is in the hands of the City Corporation and the borough councils. But not all the cases fit for institutional treatment are dealt with by the Council. Such persons as are insured are declined, since the Insurance Commissioners are responsible for them; and again, it was found that no fewer than 2,300 cases of chronic tuberculosis were in the care of the Poor Law authorities, and these the Council do not propose to interfere with. Between so many authorities one is inclined to wonder if any satisfactory scheme can be evolved. Up to the present schemes for the provision of dispensary treatment have been submitted by eleven borough councils and approved.

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THE MEDICAL SERVICE ON THE SOMME.

THE battle of the Somme had, at the end of last week, continued for some ten or eleven weeks, according as to whether we date it from the beginning of the intensive artillery preparation or from the actual infantry advance. On the fourth day of the battle, when what may be called its first stage ended, the Commander-in-Chief, Sir Douglas Haig, addressed a Special Order of the Day to Sir Arthur Sloggett, Director-General of Medical Services in France, conveying to him and through him to the Directors of Medical Services and all concerned under them his high appreciation of their hard work and the efficiency of the arrangements for dealing with the medical aspect of the situation. This efficiency was due in the main to two causes—the care and skill with which all administrative arrangements for the collection, treatment, and evacuation of the wounded had been thought out, and the fine spirit with which the officers of the Royal Army Medical Corps responded to the demands which the large number of wounded made upon their energies.

And the same thing has been going on ever since, not with the same intensity, but without a stop. We may speak of the first stage, but the battle has gone on without pause, though with fluctuations in intensity; the rumbling and groaning of the guns does not cease day or night, every night the horizon is lit by the flashes of the howitzers and the glare of the rocket flares thrown up from the trenches. At all sorts of times the wounded are coming in from the field ambulances in larger or smaller parties, in char-à-bancs and motor omnibuses, and in motor ambulances to the casualty clearing stations; there they are sorted, and all are dressed and fed, while the most severe cases—men collapsed by wounds of abdomen or chest or thigh—are kept for some days, operated on, if necessary, and in any case carefully nursed and tended. At intervals which vary in length with the pressure at the moment they, or others who have been retained in the clearing station from previous days for treatment, are being loaded into ambulance trains which take them to the base. A casualty clearing station is a place of continual coming and going, and in any twenty-four hours there may pass through it many times as many wounded as it keeps. It is on or very near a railway, usually at the furthest point to which the line can be worked. Very often one of its boundaries is formed by the siding for the ambulance trains, and these trains seem always to be there when they are wanted; this is a fact which may easily escape a visitor's attention, because it seems to be taken as a matter of course, but it calls for elaborate organization and constant vigilance on the part of the senior medical officer responsible for seeing that the shuttle of his ambulance train works easily through the web of all the supply and troop trains constantly moving up and down from base to front and front to base.

When the full story of the work done by the British medical service in France can be told it will reflect undying honour on all the actors in it. The story will be all the more to the honour of the medical profession because so large a proportion of the officers concerned were men who a couple of years ago, or in many cases much more recently, were engaged in civilian practice at home. How well they have lived up to the motto of their Corps, *in arduis fidelis*, is best shown perhaps not by statistics or accounts of individual acts of heroism, but by the feeling which the whole British army now serving in France has for the Corps. It is not possible easily, or perhaps at all, to put into words, but it is none the less very real, and any one who moves about the zones of the army is aware of its existence. We say at home that nothing is too good for the wounded man, and that no energy or skill can be better spent than in easing his sufferings and helping him along the road to recovery. We say that here; the military medical service in France says very little about it, but it is always and everywhere putting the principle into practice. It is to be seen in the regimental officer when he is summoned from his dressing post to some wounded man whose condition is such that he must have immediate surgical attention before he can be moved. It is seen in the officers of the field ambulance, who throw out advanced dressing stations so far forward that the wounded, whether walking or carried on stretchers, can reach them quickly, and who establish their main dressing station in a position as well protected from shell fire as the nature of the ground allows, but always necessarily within reach of modern long range guns. It is seen in the casualty clearing stations a few miles further back, which are reached by the wounded within a few hours, and where serious cases find physical comfort, surgical skill, and nursing attention which in all essentials cannot be surpassed in a permanent hospital. It is seen also along the lines of communication, in the ambulance trains by which the men are evacuated to the hospitals at the bases, in those hospitals, and in the hospital ships which carry them to this country. In all these places the one governing motive is to do the best possible for the men, and that best is so good that it seems impossible to think of anything that could be done to make it better. Yet small improvements in matters of detail are continually being devised, and there is a healthy rivalry among units, each one aspiring to be the most efficient of its kind.

The officer in command of a medical unit must be a man of resource. General principles are always the same; but in their application a host of difficulties in detail have to be overcome, and the amount of thought and ingenuity displayed in overcoming them is altogether admirable. The heads of the medical service in the British armies fighting in France carry an immense load of responsibility; their policy has been to give all possible elasticity to the medical arrangements from front to base. They have encouraged individual initiative, and have taken pride in making known throughout the armies any new plan or device which has been found to work well.

It is obvious that the work the Royal Army Medical Corps has to do at and immediately behind the firing line cannot be done without risk of death or wound. The regimental medical officer and the officers of the field ambulances cannot do their duty without taking risks. It is sometimes said at home that they are too ready to take risks; but we believe that the officers of

the Corps are too deeply imbued with a sense of duty to take risks which they ought not to take. The regimental medical officer knows that his primary duty is to help the wounded man by giving him the best surgical treatment possible while the regiment is in action, whether advancing or resisting a counter attack, on the trenches or craters it holds. To do this he must be at his regimental dressing post, to which the wounded find their way or are carried. He must be at his dressing post also or return to it as quickly as possible if called away, so that it may be known where to find him when he is wanted in an emergency, for there are occasions when duty calls him forward to give surgical aid to sorely wounded men in the zone of greatest danger. Into this zone must go also the non-commissioned officers and men of the Corps, who rival their officers in their devotion to duties which are not only extremely trying and fatiguing, but demand also the highest courage. We can only pay a reverent tribute to the gallant men who, when they see their duty clear, never hesitate to give their lives.

The losses in the Royal Army Medical Corps at all fronts officially reported and recorded in our columns from July 8th to our issue of this week number 46 killed or died of wounds, and 153 wounded. This is a large number in proportion to the strength of the Corps. It is true that the British armies are now far flung in three continents, but probably the large majority of the casualties during the period taken have occurred in France. It is a serious matter for a profession which is straining every nerve to supply the army with medical officers to lose so many men, young or in their early prime, but their sacrifice has not been in vain; they have died or suffered doing their duty, and the army, silent but observant, knows it, and lets the Royal Army Medical Corps, officers and men, understand that it knows it. It also knows, and in the same silent way makes it understood that it knows, that all officers and men of the Corps, from the regiments, through the field ambulances and the casualty clearing stations, to the coast, are leaving nothing undone to help. The country has supplied them with the means to give that help, and they are using these means not only with precision and energy but with sympathy and enthusiasm.

UNCLEANLINESS AND SCARLET FEVER.

THE system of inspection of the children in London elementary schools with regard to personal cleanliness appears to work very well. The school nurses make their rounds of the schools systematically and examine heads, bodies, and clothing; parents whose children fail to reach the ordinary standards of cleanliness receive a warning that speedy improvement is necessary; the homes of the children are visited and the parents shown how to effect and maintain the necessary improvements. The equipment of the local borough authority at the baths and washhouse, can, when necessary, be requisitioned for the effective cleansing of the body and the clothes of the child. When parents are contumacious the child is brought up before the school doctor for examination; and in some cases prosecutions have been undertaken so that the authority of the law may be vindicated at the hands of the magistrates.

Those who have experience in the matter entertain no doubt that the children in the poorer schools are far cleaner than they were a dozen years ago. It is equally certain that the efforts of the school authorities have effectively dispelled the belief of the careless parents that these plagues are "bred by the weakness of the child," and established the knowledge that they are the outcome of dirt and lack of washing. But notwithstanding all these clear gains there is room for further improvement, especially in the schools where the children are for the most part of the clean order. In those schools there is an established, albeit unrecognized, standard of fitness which a child must attain before the head teacher admits it; but for all that there are dirty children in the best elementary schools, even though their dirtiness is masked by a fair exterior. It is the presence of these children, or rather the live stock they carry and fail to keep to themselves, that brings trouble to the rest. There is room for some better sort of cloak-room accommodation in the elementary schools; not necessarily larger and more elaborate rooms, although these are necessary in some schools which have still no more than the primitive hooks and pegs on the passage or staircase walls. What is wanted is some sort of grading of the accommodation, so that the hats of the dirty and the clean should not be hung up side by side, to the great disadvantage of the clean. Similar improvement in the seating arrangement of the class-rooms is needed, more especially where the common dual desks are in use, so that dirty and clean should not sit cheek by jowl. There is no necessity for any disagreeable publicity in such arrangements—only the good sense of the teachers to effect a desirable selection. But even if the division were known there would be no great harm done—probably the reverse—for the knowledge that dirt is a bar to the social distinction of the school would be as effective a stimulant to good deeds as any moral grading in the wider field of life. There was an occasion some dozen years ago, before school cleansing schemes were born, when such a suggestion was made to the head mistress of a London school. She indignantly denied that there were any dirty children in her school, but the demonstration of the state of the heads of the first row of one room only made her unwilling to see the next row. The horror of her discovery is little compared with the distress, the tears, and the most righteous indignation that at times come to those careful mothers who are for ever striving to keep the creeping enemy at bay.

So far the case has been considered rather from the parental or domestic view. But the same conditions have a very definite medical aspect. The manner in which various plagues are spread by vermin—bugs, fleas, and lice—is common knowledge. It has been proved of the plague in respect of fleas, and of typhus fever in respect of lice. Now, in the current report of the Medical Officer of Health for London we have the results of a "vermin inquiry"; they suggest that there may be a connexion between vermin and scarlet fever. Two main preliminary considerations are mentioned. The first is that scarlet fever is wont to display major waves of prevalence in which the intervals between the crest is some six to eight years. Such a wave crest was due in 1914, and appeared. A correspondence between this wave and one showing the prevalence of fleas is found to exist. The second is that scarlet fever displays a remarkable inverse correlation with the rainfall. On the whole, there is a general correspondence between the annual prevalence of dryness and scarlet fever. A similar correspondence has been noted in India for rat fleas. In London it has been observed that the wave of flea incidence precedes that of scarlet fever by some three to eight weeks. In this connexion charts are given showing the different incidence of the fever in different

types of schools. In one borough of the worst social conditions the incidence of the fever was highest in the youngest years, the peak was sharp, and the decline fairly rapid. In another borough of the best social conditions the rise was delayed and the decline slower. The curves of the two sets of schools suggested that the better class children were protected in their younger years by home care but got the infection at the schools.

The demand for cleanliness is a real necessity of health, both individual and public. Not only is uncleanliness an index of neglect; it may be an active disseminator of infectious disease. We would press this view of the case upon the magistracy of the country, for with them lies the final arbitrament between the school authorities and the contumacious objectors to cleanliness. We also commend this view of the situation to the thought of certain educational reformers who insist upon the wastefulness of our caste system of educational aloofness, and urge the superior advantages, both economic and social, of a "common school system." Much of the failure of our common school system to materialize into schools to which any and every child could be taken arises from this suspicion of dirt. Dirt and diction are the two great enemies of the common school; the one is certainly in the control of the authorities if not the other.

The relation of dirt and disease is so certain that there is a good case for the institution not only of such simple modes of protection as have been indicated above, but also for a generous expenditure on school baths and cleansing appliances; the cost of these would be a small premium for an insurance against the heavy losses incurred through disease.

BRITISH MEDICAL OFFICERS AND THE CIVIL POPULATION OF NORTHERN FRANCE.

AMONG the multifarious duties which fall within the province of the British medical officer in France may be not only the sanitation of the town, but also the supply of ordinary medical attendance to its inhabitants. Many places are virtually denuded of their ordinary doctors, who were called up at the beginning of the war to serve with the army. Only those beyond military age remain, and even in a considerable town may number only one or two. In one town it fell to the lot of the medical officer responsible for attendance on the civil population to have to do a great deal of work, including several important operations. The inhabitants recently showed their appreciation of his services by presenting him with a work of art, accompanied by a testimonial signed by the mayor and principal inhabitants. A local newspaper has recently published an account of the sort of work that is done for the civil population. "In the absence of any permanent system of control (says our contemporary) it is impossible to furnish complete statistics of the work done, but the following figures speak for themselves: Within the zone of a single army the English doctors give 245 consultations a day. In that of another army, from October, 1914, to April, 1916, they performed 463 important operations, and treated more than 16,000 cases. This beneficent activity is infinitely varied in character. The English doctors have had to combat all the common diseases and to take measures against the epidemics which always threaten to develop in time of war. With that object they have vaccinated all the inhabitants against typhoid fever. They have treated the civilians, unfortunately very numerous, who, in fields or towns, have been wounded by the fire of the enemy. They are constantly called upon to attend women in labour. Their stations have almost everywhere been enlarged by the addition of dispensaries, where they give advice to all comers. They have even established children's hospitals. The chief medical officer of one of these hospitals has been baptised by his little patients 'The English papa.' It would likewise be impossible to praise too warmly the tact of the British medical officers. The general rule adopted by them when called to a patient is to give only the treatment most urgently needed; then the patient is sent back to his French doctor, unless he is mobilized. Universal gratitude is felt towards them. On their part the medical officers of the English army are constantly expressing their admiration of the courage and patience of the people so sorely tried."

SIGHT TESTS FOR THE BRITISH ARMY.

FOUR months ago we called attention to the standard of vision required for the British army, and suggested that its application sometimes resulted in the rejection of men who would be regarded as fit for the armies of other nations. The matter was the subject of a careful article by Paterson and Traquair,[1] of Edinburgh, who summarized their conclusions by stating that the present sight test for general service for recruits for the British army is by far the highest in Europe, and excludes from the fighting line large numbers of men freely used as combatants in the armies of the chief Continental powers. This they attributed to the fact that in the sight test for the British army it was vision without glasses (uncorrected vision) which counted, whereas in the chief Continental armies it was vision with glasses (corrected vision) which counted. We are advised that it is well known to ophthalmic surgeons that many men are still being rejected on account of defective vision for the British army who might safely be accepted. To-day a man who has a visual acuity with both eyes together of 6/3—that is to say, an individual who may be an excellent shot, and who in civil life is conscious of no disadvantage, may be relegated to garrison duties because one of his eyes does not reach the standard of 6/60; whereas another with an acuity with both eyes together of only 6/24, a man who cannot see the bull's-eye at any reasonable distance, is held to be fitted for field service. Any Continental army would jump at the large number of men with practically perfect sight whom we condemn to garrison duty. The plain truth is that by the British system a good sighted man may be rejected and one with vision one-quarter of the normal may be accepted. If the French army and every other Continental army tests its recruits with spectacles on, when these are necessary to good vision, may it not be that they, with their longer experience of a nation in arms, are right? The best shots are the men who see best, and a soldier who has 6/4.5 vision will as a rule shoot better than one with the regulation acuity of 6/24, even if the former gain his good sight with spectacles. The fact that the tests are made without correction of the errors of refraction renders it possible for men to be enlisted who are hypermetropic to a dangerous degree, and even those who have serious disease of the eye. There are, we are told, men to be found in many eye hospitals at home with high degrees of hypermetropia who, after a long and expensive training, have broken down under the stress of active service, and also men with cataract, with retinitis pigmentosa, with extensive choroiditis, or other serious eye disease. Many of these imperfect eyes have done excellent service, and yet the man with one perfect eye is rejected. The War Office would probably be well advised to consult the Ophthalmological Society or to appoint a committee containing ophthalmic surgeons of repute to consult with the army medical officers and overhaul a system which, it is asserted, is now robbing the active army of thousands of fine soldiers—a system which at the same time may admit recruits who are only fit for non-combatant duty to the combatant line. In the navy the question is different. A very high standard is necessary, and the senior service

[1] *Lancet*, May 6th, 1916.

has always been able to demand and obtain the very best. But even here it would seem that a stoker with one perfect eye could fulfil his duties in a completely satisfactory manner.

IONIZATION OF CICATRICES.

A STRONG plea for the treatment of contracted or adherent cicatrices of the limbs by ionization with potassium iodide is made by Chiray and Bourguignon,[1] neurologists to one of the French military regions. They used the town supply reduced, and zinc or tin electrodes covered preferably with asbestos. The solution contained 1 per cent. of potassium iodide in distilled water. The current was localized as far as possible to the cicatrix. A negative electrode, with its covering soaked in the iodide solution, was applied over the cicatrix, and a positive wetted with water only was placed on the other side of the limb. The intensity of the current used with an electrode 60 cm. square was generally 10 milliampères, and each sitting lasted half an hour. The first effect noticed was a change in colour; the cicatrix became paler by degrees. At the second stage of treatment the cicatrix became thinner and less indurated and the epidermis more supple. At the third stage the cicatrix was loosened from the deeper parts and moved easily over them. At this stage it might be necessary to use other means to relax or break down adhesions about joints, but by the ionization treatment alone the muscles and nerves involved in the cicatrix might be freed and contractures might then disappear. A sitting was given at first every day, and from an early stage the surgeon began to mobilize the skin and, if possible, the joint. In some cases an extraordinary improvement was observed in eight or ten days, but in the majority not until after five or six weeks; in some treatment had to be extended over three or four months before improvement was marked, and it is said that as a rule treatment should not be discontinued until some such period has elapsed.

HIGH ALTITUDES AND NEURASTHENIA.

DR. GEORGE MOLEEN, of Denver, Colorado (*Journ. Amer. Med. Assoc.*, August 12th, 1916, p. 477), has made investigations concerning the class of patients who are able to live with more comfort at relatively low altitudes and manifest irritable neurotic disorders on going to higher elevations. He finds that the demand for oxygen-carrying elements of the blood increases directly with the altitude. In normal individuals this requirement is met through an increase in the red blood corpuscles and haemoglobin in from three to five weeks—the normal acclimatization. This power of adaptation is diminished or wanting in certain individuals. Deficient acclimatization results in limited oxygen supply or relative anaemia. The increased excitability or irritability of the nerve structures may be explained as a result of diminished oxygen supply. If by therapeutic or other means the blood-forming mechanism can be stimulated, individuals should find no more difficulty in living tranquil lives in the high altitudes than at the sea level. Moleen insists that neurasthenic cases do not occur more frequently in high altitudes than in low. He admits that rarefied air may cause discomfort where neurasthenia has already developed, but contends that neurasthenia is infrequent in districts where the air is rarefied. The general standard of living, he says, is always better in high altitudes than in congested centres of population in great towns and populous valleys. Work is seldom carried on in small rooms under artificial light. There is a greater average of bright cloudless days, and intensity or actinism of the light at high altitudes is favourable to health.

SWEATING IN NERVOUS DISORDERS.

IN many lesions of the central or the peripheral nervous system the readiness with which the affected areas of skin perspire is altered. This fact has, of course, long been known, but Professor Negro of Turin has recently described[2] a neat method of demonstrating such changes in the perspirational activity of the skin. It consists in applying to the patient's skin by means of a powder-puff a mixture of three parts of blue litmus and one part of tartaric acid, both as finely pulverized as possible and dry. The patient is also given a hypodermic injection of a sixth or a quarter of a grain of pilocarpin nitrate or hydrochloride in the middle line of the back. This causes him to break out into a perspiration, which shows itself at once by turning the blue litmus powder red. Any delay or acceleration, as the case may be, in the reddening of an area of the skin, due to a nervous lesion, is thus readily observed, and its precise limits can easily be noted. Professor Negro adds that the method of recording direct imprints of sweating areas on sheets of litmus paper in cases of nervous lesions was described by him as long ago as the year 1903.

SCIENTIFIC AND INDUSTRIAL RESEARCH.

THE report of the Committee of the Privy Council for Scientific and Industrial Research for the year 1915–16 has recently been issued.[3] The sum at its disposal for the financial year 1915–16 was £25,000, out of which £4,250 was granted to the Royal Society. For the current financial year 1916–17 the vote was £40,000, and at the close of the academic year a sum not exceeding £6,000 will have been granted to a number of individual research workers, students and others. In an appendix is the first annual report of the Advisory Council. It consists of Sir William S. McCormick (chairman), Lord Rayleigh, Sir George T. Beilby, Mr. W. Duddell, Professor J. A. McClelland, the Hon. Sir Charles A. Parsons, Professor J. F. Thorpe, and Mr. Richard Threlfall. There are three standing committees—on engineering, metallurgy, and mining respectively. A sketch is given of Government action in the present century previous to May, 1915, when the presidents of the Boards of Trade and Education received a deputation from the Royal and other learned societies, urging the need for Government assistance for scientific research for industrial purposes, and the establishment of closer relations between the manufacturers and scientific workers and teachers. The Government scheme was issued a couple of months later, and the special committee of the Privy Council and the Advisory Council itself were thereupon set up. The object of both committee and council was to be the establishment of "a permanent organization for the promotion of industrial scientific research." Thus was recognized the necessity for organizing the national brain power in the interests of the nation at peace. War has remained as much an art as ever, but its instruments are now not only forged by the man of science, but they need a scientific training for their effective use. This, the report says, is equally true of the weapons of industry. The brains, even the very processes, that to-day are necessary to the output of munitions were yesterday needed, and will be needed again to-morrow, for the arts of peace. The Council was faced from the first with the fact that the war had greatly reduced the number of workers available for research, and it found that certain researches conducted or directed by professional associations in the period preceding the war stood in grave jeopardy of enforced abandonment. The first act of the Council, therefore, was to save as many derelict researches as possible; its second was to confer with professional and other societies concerned, especially with chemical and electrical industries; its third to form a register of researches; its fourth to aid research in educational institutions, and its fifth to form the standing committees already mentioned. The appointment of other standing committees is in contemplation. The sphere of universities

[1] *La Presse Médicale*, August 3rd, 1916.

[2] C. Negro, *Giorn. d. R. Accad. di Med. di Torino*, 1916, lxxix, 233.

[3] H.M. Stationery Office. Cd. 8,336. Price 3d.

and technical colleges in relation to the work with which the Council is concerned is discussed, and finally certain general conclusions are drawn. The first is that a largely increased supply of competent researchers must be found, and the second, that there must be a hearty spirit of co-operation among all concerned, men of science and of business, working men, professional and scientific societies, universities and technical colleges, local authorities, and Government departments. It was found that the output of the universities before the war was altogether insufficient to meet even a moderate expansion in the demand for research. It is hinted that hitherto the scientific army in Great Britain has consisted of a brilliant group of staff officers, and it is bluntly said that we have not yet learnt how to make the most of mediocre ability, though without scientific rank and file it will be as impossible to staff the industrial research laboratories that are coming as to fight a European war with seven divisions. The Council expects to be able to encourage a longer period of training by the offer of research studentships, but "it is useless to offer scholarships if competent candidates are not forthcoming, and they cannot be forthcoming in sufficient numbers until a larger number of well-educated students enter the universities. That is the problem which the education departments have to solve, and on the solution of which the success of the present movement in our opinion largely depends." The Council considers that the organization of research in the interest of various industries must be co-ordinate. "It must be continuous in its operation, and its ramifications will spread as knowledge grows. It will inevitably tend to bring industries into intimate relation which are at present independent of each other; to transform what have hitherto been crafts into scientific industries; and to require co-operation, not only between different firms in the same industry, but between groups of industries in a continuously widening series of inter-related trades. The forces which are at work in this direction have elsewhere found their expression in connexion with the trust and the combine; but we believe, if the real nature of these forces is clearly grasped, that it will be possible to organize them for the benefit, not only of the industries, but of the nation as a whole." The report, as will be seen, has little direct bearing upon medicine except in so far as it relates to the industry in synthetic drugs, but the general principles discussed are full of interest to all who are concerned with medical education.

BELGIAN REFUGEES.

As a result of the inquiry conducted by a committee presided over by the Duke of Norfolk, the President of the Local Government Board has issued a memorandum on the arrangements for the welfare of Belgian refugees in this country. In a covering letter addressed to secretaries of local refugee committees it is stated that about a quarter of a million refugees have come to this country, and that by the action of local committees and private hosts a great deal has been done to secure their welfare. The Duke of Norfolk's committee has now recommended that, with a view to continuing the assistance and securing a closer co-operation between the many organizations looking after the welfare of the refugees, it has become desirable that a chief commissioner should be appointed, and that the work which the War Refugees Committee has hitherto undertaken in the distribution of Government grants should be brought more directly under the control of the Board. Mr. Basil Peto, M.P., has been appointed chief commissioner without salary. At the beginning of 1915 it was found that in many trades to which the refugees belonged workmen were in demand, and the members of the Official Committee of Belgians in this country appealed to their compatriots to make a return for the hospitality shown to them by accepting suitable work when it was offered. This committee strongly pressed the view that, in the interests of the Belgians themselves, it was of great importance that they should not remain idle, and to-day the great majority of Belgian workmen are in employment, and largely supporting themselves and their dependants. But there remain many refugees who are not able to undertake remunerative work, and others who, though in employment, sometimes need financial or other assistance. For them assistance, either by way of money grants or the provision of hospitality, has continued to be necessary. A new Belgian law calling to the colours all males between 18 and 40 years of age will have the effect of increasing the number of women and children needing assistance, and they have special claim on British hospitality. Many local committees have still funds sufficient to carry on their work, but while it is hoped that the committees and private hosts will continue to render all the assistance in their power, and in many cases will be able to do so without outside financial assistance, Mr. Long states that in the event of such assistance being required the Government is prepared, subject to necessary rules and conditions, to continue to afford it through the War Refugees Committee. The memorandum states that the society known as "L'Union Belge" or "De Belgische Eendracht" has recently been approved by the Insurance Commissioners for all parts of the United Kingdom. It is carried on under the auspices of the Belgian Ministry, and any Belgian desiring to join the society should communicate with the secretary at 6, Grosvenor Gardens, London, S.W. Belgians who are not already members of approved societies should be advised to join either the Union Belge, or any other society they may prefer willing to admit them to membership. The Local Government Board has undertaken to pay or provide for the special or institutional treatment of sick refugees without funds of their own, but it is desirable that such cases should as far as possible be dealt with in the locality in which the sufferer resides. With regard to cases of tuberculosis, it is advised that the tuberculosis officer of the county or county borough should be asked to report upon the case. If he advises sanatorium or hospital treatment but is unable to obtain it, a direct application may be made to the Board, which is prepared to pay the reasonable cost of maintenance in an appropriate institution. Cases of lunacy should be dealt with by the guardians of the union in the ordinary way, but the Board is prepared to refund to the guardians the expenditure on removal and maintenance. General correspondence with regard to Belgian refugees should be addressed to the Chief Commissioner, War Refugees Committee (Government Branch), General Buildings, Aldwych, W.C.; or, in Scotland, to the Secretary, the Glasgow Corporation Belgian Refugee Committee, 234, St. Vincent Street, Glasgow.

CONFERENCE OF LOCAL MEDICAL AND PANEL COMMITTEES.

THE Insurance Acts Committee of the British Medical Association has decided to call a conference of representatives of Local Medical and Panel Committees at a date in the second or third week of October, of which due notice will be given. Earlier in the year the majority of Local Medical and Panel Committees had expressed opinions to the effect that it would not be necessary to hold such a conference this year, but in view of recent events, and in particular of the preparation of schemes for the treatment of venereal diseases, it has been considered that the wiser course would be to hold a conference. Opportunity will be taken to consider any possible modification of the agreement for 1917, and a memorandum, which has been prepared in accordance with the request of the conference held last year, will be presented.

THE WAR.

THE PAVILION MILITARY HOSPITAL FOR LIMBLESS SOLDIERS, BRIGHTON.

THE Pavilion Military Hospital for limbless soldiers has now been open for several months, and an account of the work done there will furnish proof of the wisdom of the War Office in organizing special hospitals for the treatment of special varieties of war injuries. Other hospitals on similar lines have been established at Bray in Wicklow, Belfast, Glasgow, and Kelso. The Brighton hospital contains 610 beds, all reserved for limbless soldiers. The primary function of this institution is to put limbless soldiers into a condition which will enable them to be fitted with artificial limbs at Roehampton or one of the other similar institutions.

Before transference to Roehampton, it is necessary that a man shall be absolutely ready to have an artificial limb fitted. All sinuses must be healed, all bulbous nerve endings removed; the patient must be free from all adhesions limiting the normal movements of the joints, and all joints flexed by scar tissue must have been kept hyperextended for a considerable period.

Of the cases admitted to the Pavilion it is found that some seventy per cent. require further treatment. The treatment required may involve reamputation, or the removal of bulbous nerve ends, or osteophytic growths, or necrosed bone, or there may be some sepsis which needs attention. It is satisfactory to announce that all the cases are put into a condition to have an artificial limb fixed, and the surgeons at Roehampton have stated that they have never had a case in which some form of artificial limb cannot be fitted; the average duration of treatment at the Pavilion is two months. After notification of cure to Roehampton only a few days elapse before the men are transferred from the Pavilion. Owing to the great demand on the beds available, arrangements are being made for sending selected cases on furlough till accommodation can be provided at Roehampton provided they have suitable homes to go to.

A very special feature of the hospital is Queen Mary's Workshop, presented by the Queen to the hospital for the purpose of enabling the patients during their stay to fit themselves for a future career by gaining knowledge in skilled trades. The whole cost of maintaining the workshop is met by charitable persons, who either subscribe money, provide material, or give their services. Mr. Robert Mitchell acts as honorary director, and he and his helpers are to be warmly congratulated on the immediate success of their work. The men appreciate the classes, and are diligent and assiduous in their attendance. It is indeed wonderful to note how skilful they become, in spite of the loss of one or more limbs. Their cheerfulness, too, under circumstances which might well depress Mark Tapley himself, is a thing to marvel at.

So far four special departments have been opened. It is proposed to open others as occasion may arise. Those attending the courses at the Queen Mary's Workshop at Brighton will, when they proceed to Roehampton, be enabled to complete their instruction in similar workshops there, while waiting for their artificial limbs and being instructed in their use.

Motor Department.—Here the men have an opportunity of not only gaining knowledge in regard to motor cars, their management, running, repairs, etc., but also of becoming good chauffeurs. The enormous increase in the use of motor vehicles for all purposes offers an almost endless number of openings at remunerative wages to men with the necessary knowledge.

Electrical Department.— In this department men can acquire a knowledge of electrical apparatus, electrical machines, lighting, telephones, bells, and so on. They are trained also as electrical assistants and attendants in private mansions, theatres, hotels, houses of business, worshops, mills, and coal mines. Special instruction is also given to men to qualify them for posts as switchboard attendants in electric light works.

Carpentry and Woodwork Shop.—In this section men are taught to be expert wood workers in factories, workshops, and houses of business, and they are instructed also in the duties of house and estate carpenters.

Educational Classes.—These classes are intended to instruct the men for such vocations as require a good knowledge of English grammar and spelling, book-keeping, shorthand, typewriting, etc. They also give an opportunity for those who intend to adopt other occupations to improve their general education.

The men are urged not to neglect the unique opportunity offered them to ensure their future. They are strongly advised to take up one or more courses, and thus diminish the handicap due to the loss of a limb. Numbers of employers have expressed their willingness to engage all those men who attain the necessary degree of proficiency. All men who have gone successfully through any one of the trade courses of the workshop at Roehampton Hospital have obtained employment. It is pointed out to the patients still at Brighton that the same advantage will be theirs if they utilize to the utmost the classes available, and thus assist themselves to attain a reasonable degree of independence.

Lieutenant-Colonel R. Neil Campbell, C.B., C.I.E., is the officer commanding at the hospital, Lieutenant-Colonel Davis, I.M.S., is in charge of the division, and Colonel J. Turton, V.D., acts as secretary and registrar. The work, both of treatment and training, is carried out in the best possible manner, and all those engaged in it are heartily to be congratulated on the success of their endeavours.

RUMANIAN ARMY MEDICAL SERVICE.

IN a letter to the *Muenchener medizinische Wochenshrift* of March 21st, 1916, a Rumanian correspondent gave a summary of the events that led to the reorganization of the Rumanian Army Medical Service, which may now claim to be among the most efficient in Europe. This was, apparently, far from being the case only a few years ago. In fact, the blunders committed in the brief campaign of the second Balkan war were so serious that wholesale reforms were inevitable. Though the Rumanian participation in that campaign lasted barely two months, and though not a drop of blood was shed in the advance, which stopped only a little short of Sofia, the casualties from sickness were very heavy. In a few weeks more than 6,000 soldiers had succumbed to cholera, which dogged the heels of the victorious Rumanian army even after its return home. The disease was conveyed to the remotest districts in Rumania, and it was stamped out only after the most energetic measures for its repression had been adopted. The causes of this and other disasters were numerous. There was a shortage of fully trained bacteriologists, of travelling laboratories and of military hospitals. Yet there was no reasonable excuse for this shortage; the men and the materials were available in adequate numbers, but they were not used to the best advantage. The supreme direction of the medical service was then in the hands of men who expected medical skill to be proportionate to rank, who assumed a general knowledge of every branch of medicine on the part of the army doctors, and were oblivious of the need for specialists. Hence the appointment of elderly, retired army doctors to the command of large moving or stationary hospitals, of physicians to important surgical appointments, and of skilled surgeons, including even university professors and teachers, to regiments on the march, or to duty in cholera barracks —all this because appointments went by military rank instead of by professional qualifications. Another cause of the faulty sanitary conditions was a shortage of drugs and dressings in the field.

The thorough badness of this state of things paved the way to wholesale reorganization. The rank of the army doctor was largely determined by his professional qualifications. Third-year students were given the rank of lieutenant, university teachers that of lieutenant-colonel, and twenty years of practice was a qualification for the rank of major. The military age for doctors, chemists, and veterinary surgeons was raised to the end of the 65th year. Doctors with special training were appointed to duties for which that training qualified them; and, generally speaking, the distribution of the doctors aimed at a maximum of efficiency and a minimum of waste. The management of hospitals, laboratories, disinfecting stations, and operating theatres was also completely reorganized, large stocks of drugs and dressings were collected, and the number of motor ambulances and of *x*-ray installations was brought

up to the requirements of modern warfare. The reorganization of the whole Army Medical Service was entrusted to the well-known Bucarest surgeon, Dr. Angelescu. Provision was also made for the medical care of the civilian population in the event of mobilization, doctors too old for service being given this task. Arrangements have been made for the most effective employment of dentists, chemists, and nurses. In short, an almost completely new and thoroughly up to date medical service has been established, and the Rumanians are, in this respect, evidently justified in awaiting the test of war with confidence.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN D. B. MACLEAN, R.A.M.C. (temporary).

CAPTAIN G. S. MILLER, R.A.M.C.(TEMP.).

Captain George Sefton Miller, R.A.M.C., was killed in action on September 8th. He was the son of Mr. Leonard Miller, vice-chairman of the Miller General Hospital for South-East London (Greenwich), and was educated at Colfe Grammar School, Lewisham, and at Guy's Hospital. He took the diplomas of M.R.C.S. and L.R.C.P. in 1912, and graduated M.B. and B.S.Lond. in 1913. After holding the appointments of house-surgeon to out-patients, clinical assistant, and house anaesthetist at Guy's Hospital he became chief clinical assistant in the throat, nose, and ear out-patients' department of that hospital He passed the examination for the F.R.C.S.Eng. in 1914, but was only admitted to Fellowship on attaining the prescribed age of 25 this year. He received his commission in the Royal Army Medical Corps early in 1915, and went to France in April of that year. He was promoted captain on April 27th last.

CAPTAIN H. H. PROUDFOOT, R.A.M.C.(TEMP.).

Captain Harold Heafford Proudfoot studied in the University of Edinburgh, and graduated M.B., Ch.B. in 1911. After holding the office of house-physician to the Edinburgh Royal Infirmary, he was successively house-surgeon to the Bolton Infirmary, and assistant medical officer to Monsall Fever Hospital before being appointed resident medical officer to the Burnley Union Infirmary. He received his commission as lieutenant (temporary) in the Royal Army Medical Corps on May 1st, 1915, and was promoted captain on the anniversary of that day,

CAPTAIN A. J. WAUGH, R.A.M.C.(TEMP.).

Captain Arthur John Waugh, R.A.M.C., was killed in action on August 18th. He was the third son of Mr. Walter Waugh, of Chigwell Hall, Chigwell, Essex, and was educated at Cambridge, where he graduated B.A., and at St. Bartholomew's Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1912. He obtained a temporary commission as lieutenant three days after the declaration of war, on August 7th, 1914, was promoted to captain on completion of a year's service, and was attached to the North Staffordshire Regiment when killed.

LIEUTENANT M. W. LOY, R.A.M.C.(TEMP.).

Lieutenant Martin William Loy, R.A.M.C., was reported as killed in action in the casualty list published on September 7th. He was educated at the London Hospital, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1894, and was in practice at New Brompton, Kent, till he received a temporary commission in the R.A.M.C. on February 10th, 1916.

Died of Wounds.

CAPTAIN J. M. STENHOUSE, R.A.M.C.(TEMP.).

Captain John Maitland Stenhouse, who was reported as wounded towards the end of July, died of his wounds on August 25th. He was the son of the late Major General W. Stenhouse, of the Indian army, and was educated at Cambridge, where he graduated B.A. in 1900, and M.B. and B.C. in 1903, and at the London Hospital, where he successively held the appointments of clinical assistant in the aural out-patient department, senior clinical assistant for out-patients, resident anaesthetist, receiving-room officer, house-physician, and house-surgeon. He then served for a time as medical attendant to Prince Leopold of Battenberg, with whom he spent two winters at Khartoum. Later he joined the staff of the Union Medical College, Peking, and in the Boxer rising served on the medical staff of the Chinese Imperial forces. He received the decoration of the Double Dragon for his work during the outbreak of pneumonic plague in Harbin, 1910–11. One of his brothers was in command of the guard at the British Legation in Peking during the rising. Another brother has been killed in the present war. Captain Stenhouse obtained a temporary commission as lieutenant in the R.A.M.C. immediately after the war began, on August 24th, 1914, and was promoted to captain on completion of a year's service. He had been recommended for the D.S.O. for his gallantry and devotion to duty during the recent fighting. He leaves a widow and two young children.

CAPTAIN G. H. WOOD, N.Z.A.M.C.

Captain G. H. Wood, of the New Zealand Army Medical Corps, whose death from wounds was announced in the BRITISH MEDICAL JOURNAL of August 26th, where his name was erroneously spelt Woods, was a son of the late Mr. George Wood, shipmaster, of North Shields, and entered the mercantile marine as a boy, gaining an extra master's certificate at the age of 23. He was for a time chief officer on the White Star line, and entered the medical profession at the age of 30. He leaves a widow and two children.

CAPTAIN T. C. HOUSTON, R.A.M.C.(T.).

Captain Thomas Cameron Houston died on August 25th, of wounds received the same day. He was a nephew of Mr. James Houston, of Linkieburn, Muirkirk, Ayrshire, and was educated at Glasgow University, where he graduated as M.B. and Ch.B. in 1915. Immediately after qualifying, on April 2nd, 1915, he joined the Lowland Mounted Brigade Field Ambulance as a lieutenant, and was promoted to captain on completion of a year's service.

Wounded.

Captain H. St.A. Agate, R.A.M.C. (temporary).
Captain A. S. K. Anderson, R.A.M.C. (temporary).
Captain L. Anderson, R.A.M.C. (temporary).
Captain G. M. Campbell, R.A.M.C. (temporary).
Captain R. C. Coatsworth, R.A.M.C. (temporary).
Captain A. A. Cooper, R.A.M.C. (temporary).
Captain D. A. Donald, R.A.M.C. (temporary.
Captain R. H. Fothergill, R.A.M.C. (temporary).
Captain W. K. Fry, R.A.M.C. (temporary).
Captain J. T. Gunn, R.A.M.C. (temporary).
Captain J. Kirker, R.A.M.C. (temporary).
Captain J. Mackenzie, R.A.M.C. (temporary).
Captain B. B. Noble, R.A.M.C. (temporary).
Captain A. O. P. Reynolds, R.A.M.C. (temporary).
Captain F. W. Squair, R.A.M.C. (T.F.).
Captain G. E. St.C. Stockwell, R.A.M.C. (temporary).
Captain W. E. Wallis, R.A.M.C. (temporary).
Lieutenant H. C. W. Allott, R.A.M.C. (temporary).
Lieutenant J. G. Bell, R.A.M.C. (temporary).
Lieutenant S. Bryan, R.A.M.C. (temporary).
Lieutenant W. S. T. Connelly, R.A.M.C. (temporary).
Lieutenant B. M. Courtney, R.A.M.C. (temporary).
Lieutenant J. R. Elwood, R.A.M.C. (temporary).
Lieutenant E. Hudson, R.A.M.C. (temporary).
Lieutenant H. Mitchell, R.A.M.C. (temporary).
Lieutenant C. E. Tucker, R.A.M.C. (temporary).
Lieutenant and Quartermaster E. C. Bowen, R.A.M.C.

Died on Service.

CAPTAIN H. H. TANNER, R.A.M.C.

Captain Harold Herbert Tanner, whose death was announced in the casualty list published on August 28th, was the son of Dr. Herbert Tanner, of Westbourne Grove, London. He was educated at St. Mary's Hospital, where he had acted as prosector in anatomy. He took the M.B. and B.S.Lond. in 1910. He joined the R.A.M.C. in June, 1915, and had recently been promoted captain.

LIEUTENANT W. W. FARRAR, R.A.M.C.(TEMP.).

Lieutenant William Watt Farrar, whose death was announced in the casualty list published on August 28th, was educated at the universities of St. Andrews and Glasgow, graduating M.B. and Ch.B. at Glasgow in 1901. After acting as assistant medical officer at Rainhill County Asylum, he settled in practice at Misterton, Notts, where he was medical officer of health to the Misterton Rural District Council, medical officer and public vaccinator to

the Misterton District of Gainsborough Union, certifying factory surgeon, and medical officer to the post office. He received his commission in the R.A.M.C. on October 10th, 1915.

Prisoner of War.

Captain V. D. O. Logan, R.A.M.C. (temporary), is reported to be wounded and a prisoner in German hands. He was reported as missing in July (BRITISH MEDICAL JOURNAL, July 22nd).

DEATHS AMONG SONS OF MEDICAL MEN.

Adams, Auriol C. A., Second Lieutenant Royal Lancaster Regiment, only son of Surgeon Colonel Adams (retired), killed on August 18th. He was born in India, educated at Bedford, joined the Inns of Court O.T.C. in the spring of 1915, got a commission in the autumn, and had been at the front for five months.

Bernard, Henry Claude, Second Lieutenant Gloucestershire Regiment, attached Worcestershire Regiment, eldest son of Dr. Bernard, of Fishponds, Bristol, killed on September 3rd, aged 22. His commission was dated September 1st, 1914.

Berridge, William Eric, Second Lieutenant Somerset Light Infantry, younger son of Dr. W. A. Berridge, of Radnor Park West, Folkestone, formerly of Redhill, died of wounds. He was educated at Sunningdale, Eton, and New College, Oxford. His commission was dated December 2nd, 1914. He had been at the front for nine months.

Berry, Alexander James, Second Lieutenant Lancashire Fusiliers, elder son of Dr. Jackson Berry, of West Dene, Pendlebury, Manchester, killed on August 21st, aged 22. He was educated at Eccles Grammar School, and should have entered at Caius College, Cambridge, in September, 1914, but on the outbreak of war enlisted in the Public Schools Battalion of the Royal Fusiliers. He got a commission in April, 1915, and went to the front a year later.

Bidie, George Maxwell Vereker, Lieutenant Royal Scots and Royal Flying Corps, only son of Lieutenant-Colonel G. Bidie, I.M.S., met with a fatal accident flying to France on July 8th, aged 22.

Blakely, William Thomson, Private, Cameron Highlanders, younger son of Dr. W. T. Blakely, of Kirkintilloch, killed August 17th, aged 23. He was in the O.T.C. at Glasgow University, enlisted in the first month of the war, and had previously been wounded at Loos. Before enlistment he was in the office of the Linen Thread Company, Glasgow.

Craig, Eric E., Second Lieutenant Royal Irish Rifles, fourth son of Dr. James Craig, of Londonderry, killed recently, aged 20. He was educated at Foyle College, and at Queen's University, Belfast, where he was studying medicine. At the beginning of the war he joined the O.T.C., got a commission in December, 1915, and went to the front two months ago.

Dowker, Frederick Henry, Lance-Corporal Royal Fusiliers, only son of the late Dr. Dowker, of Helmsley, Yorkshire, killed July 27th, aged 39.

Fayle, Gerald Lee Bleeck, Lieutenant Royal Engineers, third son of Lieutenant-Colonel R. J. L. Fayle, R.A.M.C. (retired), of 51, Canninge Road, Clifton, killed recently. He was born in 1894, educated at Clifton College, passed into Woolwich in December, 1912, and got his first commission on August 12th, 1914.

Floyd, H., Second Lieutenant Royal Flying Corps, only son of Dr. Floyd, of Kilkeel, co. Down, died of wounds as a prisoner of war in Germany, aged 21. He was formerly a dispatch rider, attached to the Royal Engineers. He was severely wounded while flying over the German lines on August 9th, and taken prisoner.

Griffin, Claude J., Captain Royal West Surrey Regiment (the Queen's), second son of Dr. T. F. Griffin, temporary Captain R.A.M.C., of Edge Hill, Wimbledon, killed on September 2nd, aged 27. He was educated at Wimbledon and at Stonyhurst, enlisted in the 5th Hussars at the beginning of the war, got a commission on March 27th, 1915, and went to the front in July, 1915. He was present in the battle of Loos last year.

Littlewood, George Patrick, Captain Sherwood Foresters, son of Dr. Littlewood, of Highfield, Mansfield, Notts, killed on September 3rd, aged 27. He was a mining engineer, and after serving his apprenticeship with the Blackwell Colliery Company, Derbyshire, became assistant manager of the Wigan Coal and Iron Company at Standish, near Wigan. Enlisting in the Royal Fusiliers at the beginning of the war, he got a commission in August, 1915, became lieutenant in December and captain last January, and had been at the front about six months.

Renton, Francis Wallace Home, Lieutenant the Border Regiment, second son of the late Brigade-Surgeon-Lieutenant-Colonel D. Renton, R.A.M.C., and 15th Hussars, killed on August 30th, aged 29. His first commission was dated December 18th, 1914.

Rorie, Thomas Handyside Baker, Captain Black Watch, eldest son of the late Dr. Rorie, medical superintendent of West Green Asylum, Dundee, killed recently. He became a member of the Glasgow Chartered Accountants Society in 1897, and practised in Dundee, where he was a member of the Dundee Parish Council, Landward Ward, of the Dundee District Commission of Forfar County Council, and of the Dundee Harbour Board. He was the oldest playing member of the Forfarshire County Cricket Club. He had held a commission in the 4th City of Dundee Territorial Battalion of the Black Watch for some years past, and attained the rank of captain on March 26th, 1915, but about six weeks before his death had been attached to the Gloucestershire Regiment. He leaves a widow and one child.

Walker, Reginald, Major Royal Engineers, second son of Dr. Dunbar Walker, of Pembridge Gardens, W., died on September 5th, of wounds received on August 31st, aged 39. He was born in July, 1877, got his first commission from Woolwich in January, 1896, became lieutenant in 1899, captain in 1905, and major on October 30th, 1914. From July, 1911, to April, 1914, he was serving on the Anglo-Belgian Boundary Commission in Rhodesia.

MEDICAL STUDENT.

Handford, R. S., Second Lieutenant Rifle Brigade, wounded on August 9th, and died shortly afterwards. He was the eldest son of Mr. William Handford, of Barum, Gerrard's Cross, and was educated at West Buckland School, where he was a sergeant in the O.T.C., and a prefect. On leaving school in December, 1913, he became a medical student, but at the beginning of the war enlisted in the Honourable Artillery Company, and got a commission on May 5th, 1915.

NOTES.

HONOURS.

THE *London Gazette* of September 6th announced the names of a few naval officers upon whom various honours had been conferred. Among them were two medical officers, Fleet Surgeon E. J. Finch, who received the C.M.G., and Staff Surgeon A. F. Fleming the D.S.O.

A CANADIAN SOCIETY IN PARIS.

The sanitary formations sent by Canada to France comprise twenty doctors and about three hundred nurses, male and female. They have formed themselves into a society which is to meet once a month for the discussion of scientific and professional questions. The first meeting took place on September 4th in the great theatre of the Sorbonne. Among those present were most of the professors of the Paris Faculty of Medicine. Professor Landouzy, the doan, who presided, welcomed the Canadians who had come to defend the cause of justice "as much by filial piety towards France as by loyalty to the United Kingdom." Colonel de Martigny, in replying, said "Our brothers in khaki fight side by side with yours, happy, if need be, to sleep their last sleep in the sweet land of France." Professor Albee of New York delivered an address on bone grafts.

FREEMASONS' WAR HOSPITAL.

The Freemasons' War Hospital, established in Fulham Road, London, through the generosity of the craft, is now ready to receive wounded men. It has sixty beds, and is provided with an operating theatre, *x*-ray departments, and apparatus for radiant heat treatment.

RED CROSS STAMPS.

Among the ways of raising money for the wounded in small sums may be mentioned the so-called war stamps which can be used to ornament the back of an envelope. The French stamp is a tricolor, with, in the centre, the French cock over a laurel wreath enclosing the Red Cross. The National Philatelic War Fund has produced a British stamp representing Britannia taking up the sword of justice. It has been engraved and printed in colour gratuitously by Messrs. Perkins, Bacon and Co., the firm that printed the first postage stamp, the historic "Penny Black" English stamp of 1840. The stamps may be purchased at the price of 1d. each, or 6d. a set of six different colours, from the Fund, 151, Strand, W.C. The proceeds go to the British Red Cross and the Order of St. John of Jerusalem.

England and Wales.

NEWCASTLE-ON-TYNE.

British Association.

THE annual meeting of the British Association began here on the evening of September 5th, when the President gave his address. Sir Arthur Evans, who is Professor of Prehistoric Archaeology in Oxford, wisely chose a subject within his own domain, speaking on the light which archaeology had recently thrown on the origin of civilization in Europe, its Magdalenian forerunners in the south-west, and its Aegean cradle. It had been, he said, abundantly made clear that the rise of Hellenic civilization was part of a wider economy, and could not be regarded as an isolated phenomenon. Its relation to the ancient centres in the south and east had been established by its affiliation to the civilization of prehistoric Crete, and by the revelation of the extraordinarily high degree of proficiency that was there attained in almost all departments of human art and industry. The civilization of ancient Egypt was no longer regarded as something apart, but its influence was seen to lie about the very cradle of our own civilization. Civilization in its higher form to-day, though highly complex, formed

essentially a unitary mass. It had no longer to be sought out in separate luminous centres, and still less was it the property of one country or people. After an allusion to the interruption of scientific inquiry, due to the war, he appealed to the country to prepare for the even more serious struggle against the enemy in our midst, against ignorance, apathy, and the non-scientific mental attitude, and the absorption of popular interest in sports and amusements. What, he asked, was the attitude of those in power—of our Government, still more of our permanent officials?

"We hear," he said, "of 'Commissions' and 'Enquiries,' but the inveterate attitude of our rulers towards the higher interests that we are here to promote is too clearly shown by a single episode. It is those higher interests that are the first to be thrown to the wolves. All are agreed that special treasures should be stored in positions of safety, but at a time when it might have been thought desirable to keep open every avenue of popular instruction and of intelligent diversion, the galleries of our national museum at Bloomsbury were entirely closed for the sake of the paltriest saving—three minutes, it was calculated, of the cost of the war to the British Treasury! That some, indeed, were left open elsewhere was not so much due to the enlightened sympathy of our politicians as to their alarmed interests in view of the volume of intelligent protest Our friends and neighbours across the Channel, under incomparably greater stress, have acted in a very different spirit.

"It will be a hard struggle for the friends of science and education, and the air is thick with mephitic vapours. Perhaps the worst economy to which we are to-day reduced by our former lack of preparedness is the economy of truth. Heaven knows!—it may be a necessary penalty. But its results are evil. Vital facts that concern our national well-being, others that even affect the cause of a lasting peace, are constantly suppressed by official action. The negative character of the process at work which conceals its operation from the masses makes it the more insidious. We live in a murky atmosphere amidst the suggestion of the false, and there seems to be a real danger that the recognition of truth as itself a tower of strength may suffer an eclipse.

"It is at such a time and under these adverse conditions that we, whose object it is to promote the advancement of science, are called upon to act. It is for us to see to it that the lighted torch handed down to us from the ages shall be passed on with a still brighter flame. Let us champion the cause of education, in the best sense of the word, as having regard to its spiritual as well as its scientific side. Let us go forward with our own tasks, unflinchingly seeking for the truth, confident that, in the eternal dispensation, each successive generation of seekers may approach nearer to the goal."

The twelve sections were opened on September 6th, in most cases by an address from the President. In the Section of Physiology the address of Professor A. R. Cushny, of University College, London, was devoted to the subject of the analysis of living matter through its reactions to poisons. In the Section of Anthropology a discussion was raised by a paper by Professor Keith, who described recent modifications in the facial type of the English people. The cheek bones were being modified as a part of the general reduction affecting all the parts concerned in the act of chewing, and changes were occurring in the nasal bones which made the aperture narrower. In every tenth modern woman and in every fifteenth modern man there were deficiencies in the development of the jaw bones. These changes had not become common until within quite recent centuries. A comparison of the skulls showed that the English face was narrower and longer. Though the men of the British army to-day were taller, stronger, and braver than any generation of their ancestors, some of the physical changes which could be traced in recent generations were not for our ultimate good, and he urged the need of a physical survey and census of the British people.

Most of the sections brought their work to an end on September 8th, but a few held meetings on September 9th.

At a meeting of the General Committee on September 7th, Sir C. A. Parsons was appointed president of the Association for 1917–18, when it will meet at Bournemouth, and an invitation to hold a meeting in 1918 at Cardiff was accepted.

Birmingham General Hospital.

Mr. Frank Barnes, assistant surgeon has been unanimously elected honorary surgeon to the hospital in the room of Mr. W. F. Haslam, F.R.C.S. Mr. Frank Barnes, who is M.B. and M.S.Lond. and F.R.C.S., was appointed resident surgical officer in 1903, surgical casualty officer in 1904, and assistant surgeon in 1907, so that he has already served the hospital for thirteen years. He is also honorary surgeon to the Orthopaedic and Spinal Hospital, Birmingham. At the request of the board of management, Mr. Haslam has consented to continue in office as an additional honorary surgeon to help his colleagues in these times of stress.

Ireland.

Irish Medical War Committee.

At the meeting of the Irish Medical War Committee held at the Royal College of Physicians on August 17th, Dr. E. McDowel Cosgrave, President of the Royal College of Physicians, in the chair, a letter was received from Sir Thomas Myles, F.R.C.S.I., asking the co-operation of the committee to form a hospital unit for service in the East. The committee directed the secretary to reply to Sir Thomas Myles that it would be very pleased to give him all the assistance in its power, but expressed the opinion that the doctors who would join should receive rank corresponding to their professional standing.

Hospital Ship at Dublin.

The hospital ship *Salta* arrived at Dublin on September 3rd with 494 wounded men and eight officers from France. Two of the officers and 327 of the men were cot cases. Three of them were Irishmen—two from the north and one from Waterford. By an ambulance train, 20 cot cases and 130 sitting cases were dispatched to Belfast, leaving 309 cot cases and 43 sitting cases to be accommodated in Dublin hospitals. The officers were taken to the Officers' Hospital. The men were allocated as follows: Adelaide, 8; Dr. Steevens's, 50 (10 sitting); Jervis Street, 8; Mater Misericordiae, 28; Meath, 42; Mercer's, 10; National Children's, 12; Royal City of Dublin, 12; Richmond, 70 (10 sitting); St. Vincent's, 2; Sir Patrick Dun's, 8; Dublin Castle Red Cross, 90 (5 sitting); Dublin University V.A.D., 4. The cases were distributed among the Dublin hospitals by the Irish Automobile Club ambulance service with the Dublin Corporation motor ambulance, two motor ambulances belonging to the Pembroke Urban District Council, and two A.S.C. ambulances. The Irish Automobile Club ambulance service now includes two vehicles given to the club, which have been fitted with four stretchers, while, as usual, many members lent their cars. Celerity in distribution was considerably facilitated by the absence of other traffic on the North Wall. As usual, the stretcher work at the ship was done by the British Red Cross and St. John Ambulance joint V.A.D.'s. For the work at the North Wall Extension 120 orderlies were detailed, and for that at the hospitals 149. Rain fell steadily throughout the morning, and it was necessary to erect awnings over the hatchways of the ship and cover the men on the stretchers with oilsheets as they were carried to the motors. In order to obviate discomfort and suffering due to bad weather, gangway shelters are to be fixed on the extension and so arranged that the motor ambulances can back into them, so that the cases may be brought from the ship and put into the vehicles under cover. The work of disembarkation of the patients was accomplished with a precision which is the outcome of good organization and experience. The work of removing the wounded started at 9 o'clock and was completed by 1 p.m.

Health of Belfast.

The annual report for 1915 of the medical superintendent officer of health (Dr. H. W. Bailie) states that the population is estimated by the Registrar-General of Ireland as 403,000; the birth-rate on this estimation was 25.3 per 1,000, a decrease of 2.7 compared with the preceding year. The death-rate was 17.9 per 1,000, a decrease of 1.0 compared with 1914. This is the lowest death rate recorded, with the exception of that of 1911. There was a fall in the number of deaths registered as due to typhoid fever (total 10), diarrhoea (239), scarlet fever (107), whooping-cough (134), measles (177), and diphtheria (27); the number of deaths from phthisis (813) compares favourably with the numbers of the last ten years. The death-rate of

children under 1 year of age was 3.5 per 1,000, as compared with 4.1 of the previous year; 695 deaths were registered as due to the zymotic diseases, and this compares very favourably with 1,107 in 1914. Typhoid fever used to carry off its hundreds yearly; only 10 proved fatal in 1915. The national schools, numbering 292, were regularly inspected, but as both male, female, and infants are occasionally under the same roof, there are not so many buildings. Allowing 10 square feet for each pupil, according to the regulations of the Commissioners for National Education, there is accommodation in these schools for 58,500 pupils; the number on the roll during the year was 65,649, while the average attendance was 49,964. Twenty-five schools were found to be overcrowded on each inspection, and 118 occasionally.

The report makes satisfactory reading. It cannot be hoped that succeeding years will all prove as healthy, but comparison with past years shows a betterment, and will prove a stimulus to further efforts in what seems at times the almost hopeless fight for public hygiene. Dr. Bailie gives some surprising figures in the unromantic department of the removal of domestic refuse, which show the enormous amount of labour involved; for instance, the number of cleansings of ashpits and ashbins amounted to 2,354,801; number of mattresses burnt, 1,157; number of dead animals burnt, 4,139, etc.

Victoria.

EFFECTS OF THE WAR.

VICTORIA, like all parts of the British Empire, has felt somewhat acutely the shortage of medical men absent on war service. Those who, in the interests of the general public, must necessarily remain, have therefore experienced great difficulty in obtaining qualified medical men as assistants or locumtenents, and in a few quarters there has been a tendency to employ fifth year students to make good the deficiency. The Council of the Victorian Branch of the British Medical Association, recognizing the grave dangers which may attend this practice, has notified members of the Branch that they should apply to the Council before appointing a senior student to such positions.

The effects of the war on the entries of medical students in Victoria are indicated by the following figures, which, for the current year, are complicated by the action of the Commonwealth Defence Department in recalling from the front all students of medicine:

1914	116
1915	99
1916	126

VENEREAL DISEASES.

The Minister of Trade and Customs has made available the report on venereal diseases issued by the Committee concerning causes of death and invalidity in the Commonwealth. The report, which is signed by Mr. James Mathews, Chairman, Sir Harry Allen, Professor of Pathology in the University of Melbourne, Dr. J. H. L. Cumpston, Federal Director of Quarantine, and Dr. A. Jeffreys Wood, Physician to the Children's Hospital, Melbourne, states that in the year 1914, 7,189 deaths may more or less correctly be ascribed to syphilis, and that, "however faulty the schedule may be, no one can deny that thousands of lives are lost in the Commonwealth every year by syphilis, that an immense amount of sickness and inefficiency is caused by it, and that the misery entailed is terrible." All forms of venereal disease are covered by the report, and the committee states that it is opposed to any form of contagious diseases Act. The report concludes with some valuable educational and legislative recommendations. Acting on these, it is understood that, subject to each State adopting compulsory notification of venereal diseases, the Commonwealth Government has allocated the sum of £15,000 for the purpose of subsidizing on the £ for £ basis the work undertaken by any of the States in the direction of controlling the spread of venereal diseases.

DEPUTY SURGEON-GENERAL JAMES LANDALE, of Cheltenham, a veteran of the Indian mutiny, left estate valued at £43,436

Correspondence.

POSITION OF THE BRITISH MEDICAL PROFESSION AFTER THE WAR.

SIR,—I note with interest the opening of your columns to correspondence on a medico-social topic of high importance under the caption, "The obligations and consequences of the war to medical and allied sciences and the honour and interests of the medical profession." It is a pity the subject is not defined in less complex terms, and perhaps the author would make the concession of a simplified version as an aid to clear and direct discussion. In their context the first few words are perplexing, and Dr. Rowland Fothergill's explanatory letter gives me no light on "the obligations . . . of the war to . . . the medical profession." Transposed so as to read "the obligations of the medical profession to the consequences of the war," the words carry a very practical meaning.

Unless I misread Dr. Fothergill, he pleads for the approximate unification of the profession into a social apparatus for the public welfare. This admirable ideal is not new, for it has long fascinated many minds, and once it has woven its spell no implement of critic or cynic can expel it. The puzzle is to find a way to the goal. If the only road be one that is going to be paved with the willing combination of most doctors and medical bodies it will be long and toilsome, perhaps interminable. The end is more likely to be attained by other means, and social astronomers who ponder the tendencies of legislation tell us the rim of the new planet, if not the full orb, is already in sight.

Although a mere truism, it is in place to remark that the structure of society is subject to continuous change by the interaction of many forces. The war has deeply modified the speed and volume of some currents and deflected others. By common consent the relations of the medical profession to other bodies in the social system cannot be otherwise than sensibly affected in the general mutations; and it stands to the credit of the Representative Meeting that it has shown sufficient foresight, on the initiative of Dr. Fothergill, to appoint a committee instructed to survey the situation impending before the profession and to furnish an advisory report. As one who has had long and intimate acquaintance with the corporate work of the Association, I know the task will be undertaken with zeal and ability. I wish I could feel equally certain the effort will be as successful and suitably requited as it promises to deserve. But that issue is for the future, and the event will teach us in its hour.

Meanwhile I welcome what bids fair to become a great movement, and I support the appeal made to all of us to bend our influence in the direction of unity.—I am, etc.,

Birmingham, Aug. 31st. J. T. J. MORRISON.

SIR,—May I venture to suggest that the letter of Dr. F. Rees in your issue of September 2nd only illustrates the Nephelo-Coccygia in which the medical profession lives from the medico-political point of view? There is really no suggestion of any method for the building of a more substantial structure.

Dr. Rees dismisses the recommendations contained in my letter of August 26th with the statement that the British Medical Association already possesses all the office room and the organization necessary for carrying out my suggestions. Is this so? And are the office room and organization used in such a way as to obtain the best results? At all events, later on Dr. Rees affirms that in the last twenty-seven years the medical profession has never been in such bad odour with public authorities as it is at the present time. The result is ascribed to the use of certain phrases. The treatment is summed up in the statement that "if we are to gain the confidence of the public we must base all our schemes on the fact that we are primarily British subjects and only secondarily members of the medical profession."

These brave words are quite worthy of Cloud-Cuckoo-Town. They contain no vestige of a hint of concrete foundations for public confidence. I commend to Dr. Rees the suggestion in my previous letter. "The first necessity is watchfulness, which can only be maintained by a whole-time officer—preferably a layman—trained in keeping an

eye on the earliest symptoms of activity on the part of politicians or philanthropists."

Can Dr. Rees point to the existence of such a watchman, capable of turning, and in a position to turn, his earliest observations to the good not only of the medical profession but also of this country? Until such a man exists I fear that the bad odour will be rather like the smell of the rat—seen in the air, but by no means nipped in the bud.—I am, etc.,

September 11th. ADULT.

NITROUS OXIDE-OXYGEN ANAESTHESIA.

SIR,—The letter of Sir James Barr upon nitrous oxide-oxygen anaesthesia calls for remark, for it is unfortunate that sound views upon the importance of carbonic acid as a stimulant of the respiratory centre should be associated with obscure or loose writing upon the action of oxygen. The natural stimulant for the respiratory centre is carbonic acid, as shown especially by the researches of Haldane and his pupils. "Hyperoxygenation" does not, as Sir James Barr appears to think, produce apnoea. On the other hand, a deficiency in the supply of oxygen may stimulate the respiratory centre so much that the excessive ventilation of the lungs in the effort to obtain more oxygen may wash out too much carbon dioxide and thus produce apnoea. A subject breathing pure oxygen does not pass into apnoea; his rate and volume of breathing are practically the same as when he is breathing air. Apnoea can be abolished most readily by an increased tension of carbon dioxide, and, when it is associated with periods of hyperpnoea and dyspnoea, as in Cheyne-Stokes respiration, can be prevented by breathing oxygen.

The action of morphine and other drugs, which diminish the excitability of the respiratory centre, must be considered in all cases of apnoea during anaesthesia. One effect of apnoea is the abolition of the action of the respiratory pump upon the circulation of the blood from the right to the left side of the heart, and this in some cases appears to be of great importance.—I am, etc.,

M. S. PEMBREY.

Physiological Laboratory, Guy's Hospital, S.E., Sept. 5th.

SIR,—Having had a fairly large experience of the administration of nitrous oxide and oxygen in major surgery, I would ask your leave to make a few remarks on the subject, with special reference to the deaths reported in your issues of July 22nd and August 26th, in which this method of anaesthesia was used. It is, of course, difficult to form an opinion when not present, but, personally, I do not think it is certain that either of the deaths reported were principally due to the administration of nitrous oxide and oxygen.

As Dr. Dudley Buxton has pointed out, the cause of death in Dr. McCardie's case may possibly have been dilatation of the heart; but the patient had received a full dose of scopolamine with morphine, and morphine was again given just before the anaesthesia; he was also infiltrated with novocain, and the greater part of the operation (*vide* report) was done not under nitrous oxide anaesthesia, but under scopolamine, morphine, novocain, and collapse. There was no *post-mortem* examination. For about an hour after being back in bed his pulse was good in volume, regular and steady, respiration quiet, still he remained unconscious. Might this not have been due to the drugs injected, and not to the heart, even if dilated, and may not these drugs have contributed to the result?

With reference to the report on Dr. W. E. Robinson's case, I believe stovaine may have had more to do with the result than the nitrous oxide and oxygen. Anaesthesia and toxicity came on at once. From a large experience of spinal anaesthesia I know that when this occurs the toxicity will be excessive, the anaesthesia probably high, or in some cases an unusual idiosyncrasy to the drug may be present. The usual time for general toxicity and faintness to come on is from twenty to twenty-five, or sometimes even thirty, minutes after injection, and the patient may vomit and be collapsed up to this time, and therefore in the case reported I believe that the vomiting and collapse may still have been due to toxicity. Shock from forcibly pulling on the uterus could occur in the presence of a thoroughly good spinal anaesthesia.

Some years ago Captain Marshall, R.A.M.C., demonstrated by pulse tracings in some perfectly satisfactory spinal anaesthesias of mine at Guy's Hospital that a marked fall of pressure can be produced by the application of heat or traumatism to Douglas's pouch. Dr. Head pointed out long ago that some sympathetic fibres must escape even if the abdomen is completely relaxed. This reaction is as a rule quite temporary and negligible, but it might not be so in a case with hypertoxicity and with a heart "large and very fat walls, extremely flabby, and soft." (*Post-mortem* report.)

Mr. Boyle in his letter questions the use of combining general with spinal anaesthesia. However successful the spinal anaesthesia might be, if I were a woman expected to lie in the Trendelenburg position for an hour or more I should prefer to be unconscious under a minimum of anaesthetic, and from a fairly large experience in the methods of combining general and spinal anaesthesias I am sure that the patient will be in a better condition at the end of the operation if she has been unconscious.

In certain cases in which I have wished to use spinal anaesthesia, with the object of saving shock and facilitating the work of the surgeon as to ease and rapidity, but owing to the condition of the patient have been afraid of the collapse from general toxicity and vasomotor paralysis, I have got good results by cutting down the dose of stovaine or novocain, and combining a general anaesthesia with it. The smaller dose of stovaine or novocain gives perhaps faulty anaesthesia, but there will be muscular relaxation and little or no toxicity. Very little of the general anaesthetic will be required, and the patient's condition at the end will be much better than if a full general anaesthetic had been given.

Sir James Barr, in his letter of September 2nd, has completely condemned the administration of nitrous oxide, though his reasons for doing so are not given, beyond a reference to the views of Yandell Henderson, the point of which I cannot understand, as I gathered from reading his works that he recommends the giving of CO_2 and oxygen for the prevention or cure of apnoea, and there is no method of anaesthesia in which this can be done so certainly as in giving nitrous oxide and oxygen with rebreathing. As Sir James Barr has so uncompromisingly stated his view, and as I believe that this method has its place, I would ask leave to state the following views I hold as the result of my experience in giving nitrous oxide and oxygen.

I think that some means of regulating the mixing and flow of the gases is advisable, and I also believe that it is advantageous to warm the gases. In the case of a patient of averagely sound heart and respiratory organs continuous nitrous oxide and oxygen in the hands of an anaesthetist skilled in the method is, perhaps, the safest and pleasantest method of anaesthesia at present in use. In cases, however, in which the condition of the heart is suspect or respiratory ventilation imperfect ether should be given with the nitrous oxide and oxygen during induction, and in some cases a small quantity also during anaesthesia, either continuously or intermittently, as recommended originally by Dr. Fleming. Ether should be added also in any case in which difficulty is met with, instead of efforts to push the gas. Of course, where there is spinal anaesthesia or novocain infiltration, ether will often not be required or very little will be necessary. Sufficient rebreathing must be used to retain the proper amount of CO_2 in the arterial blood. In a paper I read before the Anaesthetic Section of the Royal Society of Medicine in 1913 I suggested that the most important contraindications to the method were "advanced degeneration of the heart and vessels, a marked degree of emphysema, and the presence of dyspnoea or obstruction in the airway."

I also said in the paper referred to, "That there are dangers to be avoided in this as in every method of anaesthesia is quite certain, as deaths acknowledged to have been due to the anasthetic have been reported." I believe these dangers can be avoided by careful choice of the cases in which this method is employed, by the addition of ether during induction, and in certain cases by adding a little ether during the continuance of the anaesthesia either intermittently or, more rarely, continuously; and that the small amount of ether inhaled does not much diminish the advantages to be gained by the administration of nitrous oxide and oxygen.—I am, etc.,

London, W., Sept. 9th. H. M. PAGE.

HEALTH VISITORS AND BIRTH INQUIRY CARDS.

SIR,—I wish to draw the attention of your readers to a card which has been issued to health visitors, entitled, Birth Inquiry. This card is divided into sections, headed, Child, Mother, Father, and House. The mother's name is to be filled in, the number of her children (legitimate or illegitimate), pregnancies, miscarriages, stillbirths, wages of husband, habits, occupation, state of the house (clean or otherwise), repairs, occupants, nuisances, and flies—in fact, a very inquisition of the most private nature.

Now, if the health visitor fills in this card openly after plainly telling the head of the house that she intends to do so, and asking his permission to collect the necessary information, she will run the risk of being shown the door more firmly than politely. If, on the other hand, she gets her information (as I have reason to believe) by stealth—that is, by a series of friendly visits and show of sympathy without letting her victims know of the card and its purpose—she is, in my opinion, and I am sure in the opinion of many of my fellow practitioners, acting very wrongly.

How is professional secrecy to be safeguarded in these circumstances? How are we to be assured that no improper use is to be made of these cards with people's names attached, and all their medical secrets set out and tabulated?

In this age of the craze for inspecting everybody and everything, it is time that we made a stand for professional secrecy, and now is the time to nip the activities of these officials in the bud. The poor are as much entitled to domestic privacy as the rich, and I for one shall always warn them against the activities of the modern Mrs. Pardiggle with her card system.—I am, etc.,

Yattendon, Berks, Sept. 4th. F. A. BRODRIBB.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.

Instruction of the Young.

SIR,—As some misunderstanding seems to have arisen in regard to the attitude of the National Council for Combating Venereal Diseases towards the question of compulsory notification of venereal disease, we desire to point out that we are determined to adhere strictly to the recommendations of the Royal Commission. That body carefully considered this question, and arrived at the conclusion that notification at the present time was impracticable, and might be detrimental to the operation of the measures it advocated.

A great mass of evidence was taken, and the balance was strongly opposed to compulsory methods of this nature. The Commissioners, however, recognized that, when public opinion became more enlightened, and adequate facilities for treatment had been provided, "the question of notification should then be further considered." They added that, when those conditions have been fulfilled, it is "possible that . . . notification in some form will be demanded."

We are convinced that this view is sound, and the National Council will, therefore, lend no support to any proposals having for their object the establishment of compulsory notification—proposals which would necessarily lead to controversy at a time when unanimity of effort is essential.—We are, etc.,

SYDENHAM,
President.
THOMAS BARLOW,
HUBERT M. SOUTHWARK,
Vice-Presidents.

National Council for Combating Venereal Diseases,
Kingsway House, Kingsway, W.C.,
September 5th.

SIR,—With regard to the letter of "A Public School Master" in your issue of September 2nd, the subject of the instruction of the young is one of particularly vital interest to those of us who are both doctors and the fathers of boys.

"A Public School Master" is not quite convincing in his reference to the percentage of masturbators in a certain school before and after a period of special instruction, but he does suggest that good rather than harm resulted from the "instruction given sanely and privately," and many of us would welcome gratefully some more detailed indications of what should be said and what left unsaid.

I believe that this most difficult problem—difficult alike for the clergyman, scout-master, school-master, and general practitioner—has "warned us off," one and all, not from laziness nor indifference, but from fear—fear lest the word spoken should prove more harmful than helpful, and more suggestive than repressive.

Will "A Public School Master" tell us what he has found it wise and helpful to say in the "two conversations at about 10 and 15"?—I am, etc.,

September 6th. DADDY, M.R.C.S.

PROPOSED MIDWIVES ACT FOR IRELAND.

SIR,—"M.D.," writing on the Midwives Act, recommends Ireland to "put up with the ills she has rather than flee to those she knows not of."

In rural Ireland formerly we had only handywomen practising in our districts. The results were so bad that the Irish Government Board, recognizing its responsibility, and acting in conjunction with the local boards, and with the approval of the medical profession, undertook the duty of limiting the injury which was being done by untrained midwives, and placed in the dispensary districts qualified maternity nurses to afford free treatment to persons whose means prevented them from making competent provision for the lying-in period. The extent to which this movement has developed can be gauged from the fact that in the 741 dispensary districts of this country there are now employed 789 qualified midwives acting under the supervision of the Local Government Board. The movement is decidedly progressive, as in the year 1910 their number was 714. By the co-operation of the dispensary doctors with the official nurses the handywoman is fast disappearing from practice, and that excellent result was brought about by the insistence of the doctor, when summoned under the Poor Law, on the presence of the trained local nurse, in whose charge he places the patient in normal cases, with an instruction to communicate with him if the case at any stage was not progressing favourably. This method has established such satisfactory results that we now find our nurses are primarily called in, and we are only summoned—and that at a proper time—where our presence is actually required. Such an excellent arrangement for the safety of parturient women, and for the protection from unnecessary work and worry of the doctor appeals to me—who have seen human life sacrificed by the handywomen and who have been compelled to undertake long journeys to express a placenta or deliver a woman not needing assistance because of the ignorance of the unqualified nurse in attendance. If unqualified women obtain a legal status we have no option but to attend with them when summoned on the red ticket, and thus rehabilitate them in a position from which they have been displaced by the co-operation of our official nurses and ourselves. Bad as this is it possesses a time limit, after which the now practising handywoman passes from the stage of human destruction to her eternal reward. However, the plague spot in the proposed bill is the woman who does not register, but acting in the guise of a "monthly nurse," is actually performing the work of a midwife under the cover of a dispensary doctor, whom she can easily summon *on a ticket*, so that she may, without incurring punishment, be enabled to carry on her business "habitually and for gain" "under the direction of a registered medical practitioner," and spread sorrow, suffering, and death amongst poor ignorant people, and re-enslave the local medical officer. To the exertions of that class there is no time limit; generation after generation of them may arise and continue indefinitely in existence, and nullify for all time the efforts being made to improve lying-in conditions in this country, and harry the dispensary doctors to death.

It may be said it is as possible for the "monthly nurse" to perpetuate the evils of the handywoman in Scotland as in Ireland. I reply that is not so, because the medical practitioner there will not, generally speaking, attend unless his fee is assured, and as an essential condition to its recovery is [Clause 22 (3)], "That the midwife shall report," etc., and as this provision excludes "monthly nurses," who are not registered, and consequently not midwives, from a position to make such reports, it is obvious

that medical men acting with them would be unable to obtain a fee, and not being liable, as Irish Poor Law medical officers are, to be compelled to attend on a ticket, she will find it impossible to carry on her illegitimate trade "under the direction of a registered medical practitioner" as she so easily could do in this country with the assistance of a friendly guardian or warden. Now as mothers of inadequate means are provided for under the Poor Law, while those in better circumstances can make private provision for capable attendance, and while the Insurance Act confers maternity benefit on many thousands of persons to assist them to do so, it is obvious a Midwives Act must have a very limited scope in Ireland, being restricted to persons whose pride would prevent them from availing themselves of the Poor Law, or whose greed would not sanction the expenditure of the maternity benefit where the safety of a mother and child is involved. Under these circumstances, Ireland cannot be considered a "distressful country"—at least, in the rural areas—while in the industrial districts one would hope that between the Poor Law, and the proper application of the maternity benefit, a safe and rational settlement of the question might be effected without further legislation.—I am, etc.,

Ardfinnan, Sept. 1st. J. POWER, M.B.

SIR,—As a contribution to the correspondence on this subject, may I ask you to publish the following resolutions passed at meetings of medical practitioners in Ireland?

1. *Delegates' Meeting, June 11th, 1912:*
   That in view of the introduction of maternity benefit, the presence of a duly qualified midwife in each dispensary district is essential, and that the extension of the Midwives Act to Ireland is imperatively called for.
2. *Delegates' Meeting, January 14th, 1913:*
   That this meeting of delegates do take such steps as possible to have the Midwives Act, 1902, as amended, extended to Ireland, and that the Conjoint Committee be instructed accordingly.
3. *Delegates' Meeting, July 17th, 1913:*
   That in the opinion of this meeting the Midwives Act should be extended to Ireland.
4. *Annual Meeting, Irish Medical Association, June, 1916:*
   That the principles of the Midwives Acts (England and Scotland) should be incorporated in an Act suitable for Ireland, and made applicable to Ireland.
5. *Special Meeting of President and Fellows of the Royal College of Physicians, June 16th, 1916:*

A resolution was passed urging on the Government the necessity for passing a Midwives Act for Ireland.—I am, etc.,

Enniskillen, Sept. 8th. L. KIDD.

Medico-Legal.

IMPERSONATION.

BEFORE the Recorder, at the Central Criminal Court on September 6th, Thomas Coffey, 32, pleaded guilty to giving a false death certificate. Mr. Bodkin, for the prosecution, stated, according to the report in the *Times*, that the prisoner had for six years assumed the name and personality of a registered medical practitioner named William Joseph Greehy. Dr. Greehy had at one time been assistant to the prisoner's brother, who had practised in the north. In August, 1915, the prisoner, in the name of Dr. Greehy, received a commission in the R.A.M.C. Early in the present year the real Dr. Greehy applied for a commission, when the facts came to light. Counsel for the prisoner said that he had won scholarships, had passed the first medical examination in 1901 and the second in 1902, but had failed at his final examination in 1904, and foolishly did not sit again, but assumed Dr. Greehy's name, and went as an assistant to a medical man at Swansea. Chief Inspector Fowler said that the prisoner held a high character as a civilian medical practitioner, and had also given satisfaction in the army. The Recorder said that he did not understand why the prisoner had not sat again for his final examination. He could not, he said, remember another case in which impersonation had been carried out so effectively. He sentenced the prisoner to six months' imprisonment in the second division.

THE Chelsea Hospital for Women has received £5,000 from the trustees of the Zunz Bequest, being half an amount promised in aid of the rebuilding of the hospital.

Obituary.

R. W. DOYNE, M.A.Oxon., F.R.C.S.,

CONSULTING OPHTHALMIC SURGEON, RADCLIFFE INFIRMARY, OXFORD.

WITH great regret we announce the death of Mr. R. W. Doyne, of Woodstock Road, Oxford. He was the son of the Rev. Philip Walter Doyne, and was born at Monart, co. Wexford, in 1857. He was educated at Marlborough, and matriculated at Keble College in 1875. Illness prevented his remaining at Oxford, and on leaving he entered the Bristol Medical School, and later on St. George's Hospital. He obtained the diploma of M.R.C.S., and was for a short time in practice in Bristol. In 1883 he joined the navy, but left it in 1885 on his marriage, and settled in Oxford. He took the diploma of F.R.C.S.Eng. in 1892, and the honorary degree of M.A.Oxon. was conferred upon him in 1902.

From the outset of his life in Oxford he made a special study of ophthalmology. Beginning in a very small way, with an eye dispensary in a builder's yard, he worked steadily on, encouraged by the loyal support of many good friends, among whom were Sir Henry Acland, Dr. Liddell, of Christ Church, Bishop Paget, Dr. Talbot, the Warden of Keble, and others. Soon the committee rented on a long lease buildings from the County Hospital, and so the Oxford Eye Hospital grew little by little, till it became one of the best known and most useful institutions in the Midland counties. In 1912, after more than twenty-five years' continuous service, Mr. Doyne resigned the post of senior surgeon to the Oxford Eye Hospital, and many of his personal friends and admirers seized the opportunity of connecting his name permanently with the institution by placing within its walls an excellent marble bust with an inscription commemorating his services.

Mr. Doyne was consulting ophthalmic surgeon to the Radcliffe Infirmary. He was also the first reader in ophthalmology to the University of Oxford, a post which he held for eleven years. He was surgeon to the Royal Eye Hospital, London. It was due to his energy that there was started in Oxford a congress of ophthalmologists, which has for years met with such unqualified success, and which has attracted to its discussions some of the most eminent ophthalmologists from every part of the world. For many years Mr. Doyne was the leading spirit of these gatherings. He proved himself a most genial and kindly host, and the success of these meetings depended very largely on the care, forethought, and power of organization he had expended on the arrangements for them. Consequently when ill health prevented his attending the last two gatherings, his work was not forgotten, and formal expressions of regret and sympathy were forwarded to him from the members of the congress present.

To his skill as an ophthalmic surgeon many would be glad to testify. His boundless generosity to patients in needy circumstances was well known to some of his intimate friends. His death at a comparatively early age was due very largely to the intensity of energy he threw into any project he took up, and the scant amount of rest he allowed himself. It was especially owing to this superabundant energy that he bore down the opposition he met with from time to time in carrying out the numerous enterprises connected with his name.

Mr. Doyne was the author of a book entitled *The More Common Diseases of the Eye*, and of papers on Conjunctivitis (*Lancet*, 1910); Visual Sensation, Perception, Appreciation, and Judgement (*Ophthalmoscope*, 1910); Retinitis Pigmentosa (ibid., 1910); The Value and Misuse of Spectacles in Treatment of Headache, Migraine, and other Functional Troubles of the Eyes (BRITISH MEDICAL JOURNAL, 1910); and Description of Hitherto Undescribed Forms of Iritis, Family Choroiditis, and Conjunctivitis (*Trans. Ophth. Soc.*, 1910).

In private life it would be difficult to meet with a more generous friend than Mr. Doyne. In his periods of relaxation he delighted to gather his friends round him, and would do everything in his power to make them enjoy themselves. One of his chief amusements was

fencing, and he was the founder of the Oxford Fencing Club.

Mr. Doyne leaves a widow and two sons, one of whom, a captain R.A.M.C.(T.), is serving in Mesopotamia.

Sir ANDERSON CRITCHETT writes: The malady which overtook our late colleague, Robert Doyne, about three years ago suddenly dimmed an exceptionally bright intelligence, and closed a most promising professional career, but before the blow fell time and opportunity had been afforded him to associate his name with work which must have permanent record. He initiated and brought to a high level of success the Oxford Ophthalmological Congress, and, owing to the deservedly high esteem in which he was held by the authorities, he secured the establishment of a diploma in ophthalmology in connexion with the University of Oxford. Had fate permitted, his marked ability and firm tenacity of purpose might have brought yet further achievement; but now we mourn the loss of an able colleague and a generous friend.

WILLIAM SYMINGTON, M.B., C.M.EDIN., J.P.,

BRAMPTON, CUMBERLAND.

THE death of Dr. Symington of Brampton, Cumberland, which took place on September 3rd, aroused widespread regret in East Cumberland, where he had practised with untiring faithfulness for twenty-eight years. Dr. Symington, who was 51 years of age, was a native of Penicuik, near Edinburgh, and graduated M.B., C.M.Edin. in 1886. Two years later he settled at Brampton, where he obtained the appointments of medical officer of health, district medical officer, medical officer of the workhouse, and public vaccinator. His outstanding characteristic was the earnestness and thoroughness with which he discharged his duties, and he speedily won for himself the trust and confidence of the community in which he worked. He was fond of sport, a keen angler, and a great lover of cricket. He took an active interest in the volunteer movement, and at the time of his death he had reached the rank of surgeon-major of the 4th Border Regiment (T.F.). On the outbreak of the war he was called up for active service, but owing to failure of health he was certified as unfit for foreign service. He was, however, attached to a training camp of the 4th Border Regiment, and took a keen interest in his military duties, being popular alike with the men and with his brother officers. About four months ago he was attacked by a form of blood poisoning which ultimately proved fatal.

Dr. Symington was placed on the Commission of the Peace for Cumberland in 1896, and was regular in his attendance at the police court. He married a daughter of the late Mr. J. B. Lee, solicitor and coroner for East Cumberland, and his wife and two daughters are left to mourn his loss. The funeral, which took place on September 6th, was one of the largest ever seen in Brampton. It was attended by all classes, and was a striking testimony of the esteem and affection which his unselfish devotion to his duties for more than a quarter of a century had procured for him.

MR. WALTER LEY WOOLLCOMBE, of Plymouth, who died on August 30th, at the age of 51, was the son of a local solicitor. He received his medical education at St. Bartholomew's Hospital, became M.R.C.S. and L.R.C.P.Lond. in 1886; five years later he was admitted F.R.C.S.Edin. Soon after qualification he settled in Plymouth, where his family had been long known and esteemed, and he soon acquired a large practice. He was surgeon to the South Devon and East Cornwall Hospital, Plymouth, and consulting surgeon to Tavistock Cottage Hospital and St. Barnabas Cottage Hospital, Saltash. He was president of the Plymouth Medical Society in 1901–2, and in 1914 he was president of the Plymouth Branch of the British Medical Association. He was the author of "Enterectomy for maliguant disease" (BRITISH MEDICAL JOURNAL, 1903), "Earlier recognition of cancer" (ibid., 1914), and "Double pyosalpinx with torsion of both pedicles" (*Lancet*, 1901.

DR. W. A. HASLAM, resident medical officer of the Hull Corporation Sanatorium and Fever Hospital, died on September 1st after three days' illness of a fever contracted in the performance of his duties. He was 50 years of age. He received his professional education at Guy's Hospital, and obtained the diplomas of M.R.C.S. and L.R.C.P. in 1892. He was for some time junior house-surgeon at the London Temperance Hospital, and afterwards assistant medical officer at the West Derby Union Infirmary. In 1898 he was appointed medical officer of the Union Infirmary, Prescot, Lancashire. In 1911 he entered the service of the Hull Corporation; at the time of his death, in addition to his appointment at the sanatorium, he was acting as senior tuberculosis officer for the city. There was a large gathering of representatives of the corporation, the Hull Insurance Committee, and of the nursing staffs of the sanatorium and the tuberculosis hospital at the funeral, which took place on September 5th. The Rev. N. Pool, who officiated at the service, said that Dr. Haslam had won from his professional brethren who were best qualified to judge of his work a respect, esteem, and affection which would remain as an inspiration in the noble calling to which they had devoted their lives. Dr. Haslam was a member of the British Medical Association.

DR. GEORGE ALFRED HEBERDEN, of Victoria West, South Africa, who died recently at the age of 55, was a great grandson of the famous William Heberden, author of *Commentarii de morborum historia et curatione*. He studied medicine at St. George's Hospital, taking the conjoint diploma in 1888. In 1889 he went out to South Africa and practised first at Kenhardt. In the early Nineties he went as district surgeon to Barkly West, where he remained till 1906. In that year he removed to Victoria West, where he was district medical officer and resident medical officer till his death. He served as a medical officer in the siege of Kimberley, doing such valuable work that he was rewarded with the Distinguished Service Order. He took a leading part in establishing a cottage hospital at Victoria West. Dr. Heberden was highly respected by all who knew him. He was an active Freemason, and was a P.M. of the local lodge. He leaves a widow and two sons.

PROFESSOR NEISSER, who recently passed away in Breslau at the age of 61, was born in Schweidnitz, and was only 24 years old when his discovery of the gonococcus brought him fame. At this time he was Simon's assistant in Breslau, where, on the death of his chief in 1882, he was appointed extraordinary professor of dermatology and director of the university hospital. It was not till 1907 that he was promoted ordinary professor in Breslau. Although Neisser's name will, no doubt, chiefly be associated with the discovery of the gonococcus, his researches in other fields were far reaching, notably in dermatology, to the study of which he applied the most modern discoveries in bacteriology and serology. His researches in connexion with experimental syphilis occupied many years of strenuous labour, and after Metchnikoff and Roux had shown that syphilis can be transferred to the higher apes, Neisser showed that it could also be transferred to the lower apes. He made an expedition to Java, where, accompanied by several of his pupils, he undertook a series of experiments; the results were published in a bulky volume, *Bericht zur Erforschung der Syphilis*. In it, he discussed the conditions under which syphilis may be transmitted from one animal to another, the distribution of the virus in the body, the infectiousness of syphilis in its various stages, the problems of immunity to syphilis, and other aspects of the disease. It was on the basis of these researches that the details of the reaction which goes commonly by the name of Wassermann were worked out. Leprosy also was a subject to which Neisser devoted much attention, but the venereal diseases undoubtedly claimed most of his time and energy. He advised the treatment of gonorrhoea with protargol, and of syphilis by intermittent courses of mercury after the manner of the French (Fournier) and British (Startin and Hutchinson) schools. He recognized the value of salvarsan in syphilis, but tempered his enthusiasm with discretion, and instead of throwing mercury overboard he, like most clinicians in all countries, insisted on the advisability of combining salvarsan with mercury. He was an inspiring teacher, and in the long list of his pupils there are many distinguished names, including

Scholtz, Marschalko, and Bruck. During the war Neisser gave great attention to combating venereal diseases in the German army.

DR. VALENTIN GILBERT, of Geneva, who died on August 9th, was a leading authority on tuberculosis in Switzerland. He was born at Carouge in 1862 and educated at the University of Geneva, where he graduated M.D. in 1889. In 1890 he was sent by the State Council to Berlin to report on the effects of tuberculin; while not condemning the new remedy he did not allow himself to be carried away by the enthusiasm which it at first excited. In 1893 he was appointed secretary to the first committee formed at Geneva for the prevention of tuberculosis. At the International Congress of Medicine held in Rome in 1894 he read a paper on the treatment of tuberculous pleurisy by the hypodermic injection of small amounts of liquid from the effusion; by this method of auto-serum-therapy, which is known by his name, he claimed to have obtained good results. He was consulting physician of the Federal railways. In 1911 he was elected president of the Société Médicale de la Suisse Romande. Since the outbreak of the war he had been serving as a medical officer of the Swiss army.

Universities and Colleges.

UNIVERSITY OF LONDON.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

A Burney Yeo Scholarship for 1916 has been awarded to E. A. Woods, B.A., of New College, Oxford.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C. (France) desires to exchange with M.O. in any capacity at home, or with M.O. in ambulance train, hospital ship, or base hospital. Address No. 3700, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical Officer in military hospital, Southern Command, desires exchange to Northern Command, any appointment. Address No. 3699, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

HER MAJESTY THE QUEEN will open the extension of the London (Royal Free Hospital) School of Medicine for Women on October 2nd at 3 p.m.

A BOOK on the practice of gynaecology has been written by Dr. Jellett, Master of the Rotunda Hospital, and will be issued with coloured plates by Messrs. Churchill at an early date.

THE President of the Local Government Board has issued a circular to local authorities stating that he has decided to establish a Register of Work which might be undertaken at the conclusion of the war, and inviting the authorities to supply him with forecasts of what is likely to be requisite and possible in their several areas.

A THREE months' course of lectures and demonstrations in hospital administration for the D.P.H. will be given at the North-Western Hospital, Hampstead, and the Grove Hospital, Tooting, beginning on October 2nd and 5th respectively. Particulars can be obtained on application to the Clerk of the Metropolitan Asylums Board, Embankment, E.C.

DR. WILLIAM BARRETT ROUÈ, recently deceased, has left £300 to the Bristol General Hospital for the purpose of founding a scholarship for medical students of the hospital, to be called the "Barrett Rouè Scholarship." Dr. Rouè was himself an old and distinguished student at the hospital, in which he always took a warm interest. He practised for many years in Clifton, and was physician to the Bristol Royal Hospital for Sick Children and Women.

THE sum of £1,000 has been collected through Mr. T. R. St-Johnston, M.R.C.S., District Commissioner of the Lau Islands, for the purchase of a pair of the latest type of Red Cross Motor Ambulances for the front. The Lau Islands are a group lying about 200 miles to the east of Fiji; and the natives, an intellectual type of the Polynesian race, are intensely loyal, and have previously subscribed largely to various patriotic funds. The islands annually produce about £100,000 worth of the all-important copra.

A FACSIMILE of Lord Kitchener's letter of May 16th, 1915, calling for 300,000 more men, has been prepared by Messrs. Raphael Tuck and Sons, and is issued in an ornamental cover, designed by Mr. Brangwyn, for the benefit of the Lord Kitchener National Memorial Fund and the British Red Cross Fund. The cheapest edition is in a khaki cover, price 1s. The next more expensive is in a white cover, price 2s. 6d. It is also to be obtained in more expensive forms.

THIS is the jubilee year of the Reigate and Redhill Hospital, which was founded on September 1st, 1866. It began with six beds, and in the first year thirty-nine cases were treated, and nine operations were performed. The growth of the hospital may be gathered from the fact that last year the number of cases was 665 and 408 operations were performed. The total number of patients treated since the opening of the institution, not including dental cases, is 11,699, and 4,210 operations have been performed. There have been 276 deaths—a mortality of 2.35 per cent.

ON September 7th the medical and lay staff of Claybury County Asylum presented to the retiring medical superintendent, Dr. R. Armstrong-Jones, a silver tea and coffee service. The presentation was made by Mr. Chapman, Chairman of the Asylums Committee, and speeches were made by Dr. Ewart (who will succeed Dr. Armstrong-Jones) and other members of the staff. On the previous evening Dr. Armstrong-Jones was given a silver inkstand in the name of "a few of the 16,000 patients, present and past," and he received from the Asylums Committee of the Council an illuminated address.

IN the autumn list of forthcoming books announced by the Oxford University Press is one entitled *Dr. John Radcliffe, His Fellows and Foundations*, by Dr. J. Baldwin Nias. It is a commemorative volume containing a sketch of the life of the famous physician who offended William III by saying that he would not have the King's two legs for his three kingdoms, with an account of his generous benefactions to his Alma Mater. It also includes biographical notices of the travelling fellows elected on Radcliffe's foundation at Oxford, "collected as a labour of love in the course of many years by the author, himself sometime Travelling Fellow."

THE *Daily Express* has published for the benefit of its Cheery Fund a *Book of Limericks*, the result of a competition started by that paper. The rhymes are very many, and range from A.B., who was a theatrical sailor, to Ypres and beyond. There are a good many illustrations, some of them good, particularly the one of a gentleman who considered that people drink far too much tea. Although the correspondents tell us that the noise at the front is appalling it would appear that the soldiers desire to add to it, for the Cheery Fund has sent out 50,000 mouth organs, not to mention many other wind instruments and gramophones. It has also supplied 4,500 sets of boxing gloves, nearly 5,000 footballs, and nearly 2,000 cricket sets, as well as a large number of cigarettes and pipes and much tobacco. It has in addition a prisoners of war branch. The book can be ordered (price 1s. 6d.) from any bookseller or newsagent, and all the profits go to the fund.

THE usual monthly committee meeting of the Medical Sickness Assurance Society was held at 300, High Holborn, London, W.C., on August 18th, with Dr. F. J. Allan in the chair. The reports submitted showed that the sickness experience for the year, in spite of claims from many members on active service, which in some cases have been of a protracted nature, has so far been well under the expectation. It is estimated that some fifteen hundred members of the society are serving in the R.A.M.C. or navy and other war services. The society has up to the present invested over £20,000 in various war loans and Exchequer Bonds, and has decided that such investments as they hold which may come under the new loans to Treasury Scheme B, should be lent under such scheme. A resolution of deep sympathy with Lady Horsley was passed at the last meeting on the death of Sir Victor Horsley, who has for many years been a trustee of the society. It was decided to continue to accept new members holding temporary commissions in the R.A.M.C., and to insure them against war risks, within certain limits, without payment of any extra premium. Members of the profession over military age and between the ages of 45 and 55 can insure in the society against sickness and accident and life assurance at rates which compare favourably with the terms offered by other companies for the same benefits. All inquiries should be addressed to the Secretary, Medical Sickness and Accident Society, 300, High Holborn, London, W.C.

Letters, Notes, and Answers.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

OFFICERS ON ACTIVE SERVICE AND PAYMENT OF RATES.

RATES.—According to law, rates must be paid for all houses, unless empty and unoccupied. If the occupier shuts his house up, but leaves his furniture there, rates are still due. We know of no privilege enjoyed by soldiers in this respect, although it is possible that in some areas the rating authorities do not claim the rates in the case of those on military service, as they have the power to grant exemption at their discretion; but such exemption cannot be claimed by the ratepayer as of right.

NICOTINE IN CIGARETTES.

M.R.C.S.—A number of pipe tobaccos, cigars, and cigarettes were examined for the BRITISH MEDICAL JOURNAL, and a report was published in the issue of April 10th, 1909, p. 911. On the whole, the results showed that the tobaccos and cigars pronounced to be strong by smokers contained more nicotine than those pronounced mild. The analyses showed rather unexpectedly that Egyptian and Turkish cigarettes yielded less nicotine than Virginian. It was found that the greater part of the nicotine in the tobacco was destroyed by the heat during smoking, but it appeared to be true as a general principle that the more nicotine there was in a cigar, or in any form in which tobacco is smoked, the more the smoker was likely to take into his system. We do not know of any substance which can be depended upon to extract nicotine from the smoke of tobacco. Many smokers believe that if the smoke is made to traverse a plug of cotton-wool somewhere between the bowl and the mouthpiece, the irritating qualities of the smoke are much diminished. There are numerous devices on the market to carry this out, and the same principle is applied to cigarette-holders.

LETTERS, NOTES, ETC.

ON THE SALT PACK TREATMENT OF INFECTED GUNSHOT WOUNDS.

DR. D. W. SAMWAYS writes, with reference to the paper by Captains Roberts and Statham in the BRITISH MEDICAL JOURNAL of August 26th (p. 282): Sixteen months' experience in a large hospital in Exeter for wounded soldiers has convinced me that a sinus or wound will seldom fail to heal if syringed out once or twice daily from the bottom with eusol. When all discharge ceases the syringing is stopped, and if a sinus continues patent longer than a day or two I syringe or swab it out with a solution of nitrate of silver, 20 grains to the ounce, at the suggestion of Mr. Marmaduke Sheild, the visiting surgeon.

It appears to me that most of the troubles surgeons have with wounds and sinuses arise from not syringing them out efficiently from the bottom. I have replaced some of the nozzles of my syringes by soft copper tubes about 8 in. long and ¼ in. external diameter. One end is soldered into the screw attachment which fastens it into the end of the syringe, and the other is rounded off with a little solder; so that the whole resembles a long Eustachian catheter, though not so sharply bent at one point. This will go to the bottom of most sinuses, and leave room for the back flow with a little management. To cut open a sinus which can easily be cured without is surely most undesirable.

No doubt the method of Messrs. Roberts and Statham would result in wounds, passed from one station to another and not dressed for two or three days, arriving much cleaner than by other methods, as they contend. Cleanliness, however, is next to good surgery, and not before it.

Stinking wounds arrive sometimes in Exeter from the front which have not been dressed for two or three days. These cause no trouble, but the no-flap amputations and heroic sections which do not involve the sacrifice of "essential structures" often damage a man for life. Are they necessary? Do they not require more evidence than seems forthcoming to justify them?

LANTERN SLIDES (JAWS AND TEETH).

A SERIES of lantern slides has been prepared by Mr. Smith, Platinotype Company, 66, Beckenham Road, Penge, from original drawings and diagrams made by Captain H. M. Holt, R.A.M.C., Officer-in-Charge of the Jaw Hospital, Stanford Road, Norbury, S.W., for the use of those engaged in dealing with jaw injuries. A set of six slides comprising (1) the muscles of the face, (2) skull, (3) maxillary and adjacent regions, (4) mandible, teeth with roots, (5 and 6) half mandible, inner and outer surfaces, may be had for 10s. post free. Four slides have been prepared showing the daily menu for the week under A, B, C, and D diets in use at the hospital. They may be had for 6s., post free. There is, we are informed, no profit attached to these charges. The slides are produced solely for those who are engaged in jaw work, and who may feel the need of such assistance.

WARM ETHER.

DR. GEORGE FOY (Dublin) writes: The article "Warm Ether" (August 19th, p. 268) should awaken interest in the value of warm anaesthetics. You refer to their use some ten years ago in the University College Hospital, but warm ether was used long prior to that. Pearson, of Birmingham, used it to relieve bronchial irritation, and for the relief of the distressing cough of the advanced stage of tuberculosis in the terminal decade of the eighteenth century, as did Beddoes. As an anaesthetic I saw the late Sir Philip Smyly administer it in the Meath Hospital, Dublin, in 1872-74, with the best results, and I have not infrequently followed his method, which consisted in wringing a large conical Turkey sponge out of very hot water, enclosing the squeezed sponge in a cone of towelling, then pouring into the centre of the sponge the ether and applying it over the patient's mouth and nose. On page 141 of my book, *Anaesthetics, Ancient and Modern* (1889), there is described an apparatus for the administration of warmed anaesthetic vapours. The apparatus is designed especially for the use of nitrous oxide gas, but it can be readily adapted for the use of ether.

THE PARAFFIN TREATMENT OF BURNS.

DR. JOSEPH STARK, L.R.C.P.Edin. (Winchburgh, West Lothian), writes: With reference to your publication on the paraffin treatment of burns and your note that the treatment of ulcers by paraffin spray may possibly prove successful, I beg to state that I remember when a boy, twenty-five years ago, my father treating indolent healing hacks or fissures on the back of my hands, caused by playing marbles on damp soil, by running hot shoemakers' resin into the fissures. The results were good, the parts healing under the hardened resin. I can quite well understand that the resin filling would be aseptic, and that the hot liquid resin would cause the septic crack to become sterile.

MEDICAL MISSIONARIES.

THE secretary for the Medical Missions department of the S.P.G., Dr. Hugh H. Weir, has been good enough to send us the following list of societies in this country which send out or support medical missions, to supplement the note published in the JOURNAL of September 9th, p. 330:

Baptist Missionary Society, 19, Furnival Street, Holborn, E.C.
China Inland Mission, 45, Newington Green, N.
Church of England Zenana Missionary Society, 27, Chancery Lane, W.C.
Church Missionary Society, Salisbury Square, London, E.C.
English Presbyterian Missions, 7, East India Avenue, E.C.
Friends' Foreign Mission Association, 15, Devonshire Street, Bishopsgate, E.C.
London Missionary Society, 16, New Bridge Street, E.C.
London Society for Promoting Christianity among the Jews, 16, Lincoln's Inn Fields, W.C.
Mission to Lepers, 28, North Bridge, Edinburgh.
Moravian Missions, 7, New Court, Carey Street, W.C.
Society for the Propagation of the Gospel, 15, Tufton Street, Westminster, S.W.
Universities' Mission to Central Africa, 9, Dartmouth Street, Westminster, S.W.
Wesleyan Missionary Society, 24, Bishopsgate, E.C.
Zenana Bible and Medical Mission, 33, Surrey Street, Strand, W.C.
Presbyterian Church in Ireland, The Church House, Belfast.
Church of Scotland, 22, Queen Street, Edinburgh.
United Methodist Missionary Society, 202, Gravelly Hill, Birmingham.
United Free Church of Scotland, 119, George Street, Edinburgh.
Welsh Calvinistic Methodist Mission, 16, Falkener Street, Liverpool.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *post restante* letters addressed either in initials or numbers.